

SEQUENCE LISTING

<110> Lipscombe, Diane
Schorge, Stephanie

<120> HUMAN N-TYPE CALCIUM CHANNEL ISOFORM AND USES THEREOF

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<140> 1999-03-12

<150> US 60/077,901
<151> 1998-03-13

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Leu Tyr Asn Pro Ile Pro Val Lys Gln Asn Cys Phe Thr Val Asn Arg	
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Gly Ser Val Asn Gly Ser Pro Leu Leu Ser Thr Ser Gly Ala Ser Thr	
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Pro Gly Arg Gly Gly Arg Arg Gln Leu Pro Gln Thr Pro Leu Thr Pro	
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Arg Pro Ser Ile Thr Tyr Lys Thr Ala Asn Ser Ser Pro Ile His Phe	
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Gln Pro Leu Ala Pro Gly Ser Arg Ile Gly Ser Asp Pro Tyr Leu Gly	
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Gln Arg Leu Asp Ser Glu Ala Ser Val His Ala Leu Pro Glu Asp Thr	
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Thr Ser Tyr Val Ser Ser Leu Thr Ser Gln Ser His Pro Leu Arg Arg	
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Ala Arg His Ser Tyr His His Pro Asp Gln Asp His Trp Cys	
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Ile Ala Gln Arg Ala Arg Thr Met Ala Leu Tyr Asn Pro Ile Pro Val	
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Asp Asn Val Val Arg Lys Tyr Ala Lys Arg Ile Thr Glu Trp Pro Pro	
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Gln Ile Gly Leu Leu Leu Phe Phe Ala Ile Leu Met Phe Ala Ile Ile	
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 Ile Gly Ile Phe Cys Phe Glu Ala Gly Ile Lys Ile Ile Ala Leu Gly
 140 145 150
 ttt gtc ttc cac aag ggc tct tac ctg cgg aac ggc tgg aac gtc atg 652
 Phe Val Phe His Lys Gly Ser Tyr Leu Arg Asn Gly Trp Asn Val Met
 155 160 165

gac ttc gtg gtc gtc ctc aca ggg atc ctt gcc acg gct gga act gac	700
Asp Phe Val Val Val Leu Thr Gly Ile Leu Ala Thr Ala Gly Thr Asp	
170 175 180 185	
ttc gac ctg cga aca ctg agg gct gtg cgt gtg ctg agg ccc ctg aag	748
Phe Asp Leu Arg Thr Leu Arg Ala Val Arg Val Leu Arg Pro Leu Lys	
190 195 200	
ctg gtg tct ggg att cca agt ttg cag gtg gtg ctg aag tcc atc atg	796
Leu Val Ser Gly Ile Pro Ser Leu Gln Val Val Leu Lys Ser Ile Met	
205 210 215	
aag gcc atg gtt cca ctc ctg cag att ggg ctg ctt ctc ttc ttt gcc	844
Lys Ala Met Val Pro Leu Leu Gln Ile Gly Leu Leu Leu Phe Phe Ala	
220 225 230	
atc ctc atg ttt gcc atc att ggc ctg gag ttc tac atg ggc aag ttc	892
Ile Leu Met Phe Ala Ile Ile Gly Leu Glu Phe Tyr Met Gly Lys Phe	
235 240 245	
cac aag gcc tgt ttc ccc aac agc aca gat gcg gag ccc gtg ggt gac	940
His Lys Ala Cys Phe Pro Asn Ser Thr Asp Ala Glu Pro Val Gly Asp	
250 255 260 265	
ttc ccc tgt ggc aag gag gcc cca gcc cgg ctg tgc gag ggc gac act	988
Phe Pro Cys Gly Lys Glu Ala Pro Ala Arg Leu Cys Glu Gly Asp Thr	
270 275 280	
gag tgc cgg gag tac tgg cca gga ccc aac ttt ggc atc acc aac ttt	1036
Glu Cys Arg Glu Tyr Trp Pro Gly Pro Asn Phe Gly Ile Thr Asn Phe	
285 290 295	
gac aat atc ctg ttt gcc atc ttg acg gtg ttc cag tgc atc acc atg	1084
Asp Asn Ile Leu Phe Ala Ile Leu Thr Val Phe Gln Cys Ile Thr Met	
300 305 310	
gag ggc tgg act gac atc ctc tat aat aca aac gat gcg gcc ggc aac	1132
Glu Gly Trp Thr Asp Ile Leu Tyr Asn Thr Asn Asp Ala Ala Gly Asn	
315 320 325	
acc tgg aac tgg ctc tac ttc atc cct ctc atc atc atc ggc tcc ttc	1180
Thr Trp Asn Trp Leu Tyr Phe Ile Pro Leu Ile Ile Ile Gly Ser Phe	
330 335 340 345	
ttc atg ctc aac ctg gtg ctg ggc gtg ctc tcg ggg gag ttt gcc aag	1228
Phe Met Leu Asn Leu Val Leu Gly Val Leu Ser Gly Glu Phe Ala Lys	
350 355 360	
gag cga gag agg gtg gag aac cgc cgc gcc ttc ctg aag ctg cgc cgg	1276
Glu Arg Glu Arg Val Glu Asn Arg Arg Ala Phe Leu Lys Leu Arg Arg	
365 370 375	
cag cag cag atc gag cga gag ctc aac ggg tac ctg gag tgg atc ttc	1324
Gln Gln Gln Ile Glu Arg Glu Leu Asn Gly Tyr Leu Glu Trp Ile Phe	
380 385 390	
aag gcg gag gaa gtc atg ctg gcc gag gag gac agg aat gca gag gag	1372
Lys Ala Glu Glu Val Met Leu Ala Glu Glu Asp Arg Asn Ala Glu Glu	
395 400 405	
aag tcc cct ttg gac gtg ctg aag aga gcg gcc acc aag aag agc aga	1420
Lys Ser Pro Leu Asp Val Leu Lys Arg Ala Ala Thr Lys Lys Ser Arg	
410 415 420 425	
aat gac ctg atc cac gca gag gag gga gag gac cgg ttt gca gat ctc	1468
Asn Asp Leu Ile His Ala Glu Glu Gly Glu Asp Arg Phe Ala Asp Leu	
430 435 440	
tgt gct gtt gga tcc ccc ttc gcc cgc gcc agc ctc aag agc ggg aag	1516
Cys Ala Val Gly Ser Pro Phe Ala Arg Ala Ser Leu Lys Ser Gly Lys	
445 450 455	
aca gag agc tcg tca tac ttc cgg agg aag gag aag atg ttc cgg ttt	1564
Thr Glu Ser Ser Ser Tyr Phe Arg Arg Lys Glu Lys Met Phe Arg Phe	
460 465 470	
ttt atc cgg cgc atg gtg aag gct cag agc ttc tac tgg gtg gtg ctg	1612
Phe Ile Arg Arg Met Val Lys Ala Gln Ser Phe Tyr Trp Val Val Leu	
475 480 485	

tgc gtg gtg gcc ctg aac aca ctg tgt gtg gcc atg gtg cat tac aac	1660
Cys Val Val Ala Leu Asn Thr Leu Cys Val Ala Met Val His Tyr Asn	
490 495 500 505	
cag ccg cgg cgg ctt acc acg acc ctg tat ttt gca gag ttt gtt ttc	1708
Gln Pro Arg Arg Leu Thr Thr Thr Leu Tyr Phe Ala Glu Phe Val Phe	
510 515 520	
ctg ggt ctc ttc ctc aca gag atg tcc ctg aag atg tat ggc ctg ggg	1756
Leu Gly Leu Phe Leu Thr Glu Met Ser Leu Lys Met Tyr Gly Leu Gly	
525 530 535	
ccc aga agc tac ttc cgg tcc tcc ttc aac tgc ttc gac ttt ggg gtc	1804
Pro Arg Ser Tyr Phe Arg Ser Ser Phe Asn Cys Phe Asp Phe Gly Val	
540 545 550	
atc gtg ggg agc gtc ttt gaa gtg gtc tgg gcg gcc atc aag ccg gga	1852
Ile Val Gly Ser Val Phe Glu Val Val Trp Ala Ala Ile Lys Pro Gly	
555 560 565	
agc tcc ttt ggg atc agt gtg ctg cgg gcc ctc cgc ctg ctg agg atc	1900
Ser Ser Phe Gly Ile Ser Val Leu Arg Ala Leu Arg Leu Leu Arg Ile	
570 575 580 585	
ttc aaa gtc acg aag tac tgg agc tcc ctg cgg aac ctg gtg gtg tcc	1948
Phe Lys Val Thr Lys Tyr Trp Ser Ser Leu Arg Asn Leu Val Val Ser	
590 595 600	
ctg ctg aac tcc atg aag tcc atc atc agc ctg ctc ttc ttg ctc ttc	1996
Leu Leu Asn Ser Met Lys Ser Ile Ile Ser Leu Leu Phe Leu Leu Phe	
605 610 615	
ctg ttc att gtg gtc ttc gcc ctg ctg ggg atg cag ctg ttt ggg gga	2044
Leu Phe Ile Val Val Phe Ala Leu Leu Gly Met Gln Leu Phe Gly Gly	
620 625 630	
cag ttc aac ttc cag gat gag act ccc aca acc aac ttc gac acc ttc	2092
Gln Phe Asn Phe Gln Asp Glu Thr Pro Thr Thr Asn Phe Asp Thr Phe	
635 640 645	
cct gcc gcc atc ctc act gtc ttc cag atc ctg acg gga gag gac tgg	2140
Pro Ala Ala Ile Leu Thr Val Phe Gln Ile Leu Thr Gly Glu Asp Trp	
650 655 660 665	
aat gca gtg atg tat cac ggg atc gaa tcg caa ggc ggc gtc agc aaa	2188
Asn Ala Val Met Tyr His Gly Ile Glu Ser Gln Gly Gly Val Ser Lys	
670 675 680	
ggc atg ttc tcg tcc ttt tac ttc att gtc ctg aca ctg ttc gga aac	2236
Gly Met Phe Ser Ser Phe Tyr Phe Ile Val Leu Thr Leu Phe Gly Asn	
685 690 695	
tac act ctg ctg aat gtc ttt ctg gcc atc gct gtg gac aac ctg gcc	2284
Tyr Thr Leu Leu Asn Val Phe Leu Ala Ile Ala Val Asp Asn Leu Ala	
700 705 710	
aac gcc caa gag ctg acc aag gat gaa gag gag atg gaa gaa gca gcc	2332
Asn Ala Gln Glu Leu Thr Lys Asp Glu Glu Glu Met Glu Glu Ala Ala	
715 720 725	
aat cag aag ctt gct ctg caa aag gcc aaa gaa gtg gct gaa gtc agc	2380
Asn Gln Lys Leu Ala Leu Gln Lys Ala Lys Glu Val Ala Glu Val Ser	
730 735 740 745	
ccc atg tct gcc gcg aac atc tcc atc gcc gcc agg cag cag aac tcg	2428
Pro Met Ser Ala Ala Asn Ile Ser Ile Ala Ala Arg Gln Gln Asn Ser	
750 755 760	
gcc aag gcg cgc tcg gtg tgg gag cag cgg gcc agc cag cta cgg ctg	2476
Ala Lys Ala Arg Ser Val Trp Glu Gln Arg Ala Ser Gln Leu Arg Leu	
765 770 775	
cag aac ctg cgg gcc agc tgc gag gcg ctg tac agc gag atg gac ccc	2524
Gln Asn Leu Arg Ala Ser Cys Glu Ala Leu Tyr Ser Glu Met Asp Pro	
780 785 790	
gag gag cgg ctg cgc ttc gcc act acg cgc cac ctg cgg ccc gac atg	2572
Glu Glu Arg Leu Arg Phe Ala Thr Thr Arg His Leu Arg Pro Asp Met	
795 800 805	

aag acg cac ctg gac cgg ccg ctg gtg gtg gag ctg ggc cgc gac ggc	2620
Lys Thr His Leu Asp Arg Pro Leu Val Val Glu Leu Gly Arg Asp Gly	
810 815 820 825	
gcg cgg ggg ccc gtg gga ggc aaa gcc cga cct gag gct gcg gag gcc	2668
Ala Arg Gly Pro Val Gly Gly Lys Ala Arg Pro Glu Ala Ala Glu Ala	
830 835 840	
ccc gag ggc gtc gac cct ccg cgc agg cac cgg cac cgc gac aag	2716
Pro Glu Gly Val Asp Pro Pro Arg Arg His His Arg His Arg Asp Lys	
845 850 855	
gac aag acc ccc gcg gcg ggg gac cag gac cga gca gag gcc ccg aag	2764
Asp Lys Thr Pro Ala Ala Gly Asp Gln Asp Arg Ala Glu Ala Pro Lys	
860 865 870	
gcg gag agc ggg gag ccc ggt gcc cgg gag gag cgg ccg ccg ccg cac	2812
Ala Glu Ser Gly Glu Pro Gly Ala Arg Glu Glu Arg Pro Arg Pro His	
875 880 885	
cgc agc cac agc aag gag gcc gcg ggg ccc ccg gag gcg cgg agc gag	2860
Arg Ser His Ser Lys Glu Ala Ala Gly Pro Pro Glu Ala Arg Ser Glu	
890 895 900 905	
cgc ggc cga ggc cca ggc ccc gag ggc ggc cgg cgg cac cac cgg cgc	2908
Arg Gly Arg Gly Pro Gly Pro Glu Gly Gly Arg Arg His His Arg Arg	
910 915 920	
ggc tcc ccg gag gag gcg gcc gag cgg gag ccc cga cgc cac cgc gcg	2956
Gly Ser Pro Glu Glu Ala Ala Glu Arg Glu Pro Arg Arg His Arg Ala	
925 930 935	
cac cgg cac cag gat ccg agc aag gag tgc gcc ggc gcc aag ggc gag	3004
His Arg His Gln Asp Pro Ser Lys Glu Cys Ala Gly Ala Lys Gly Glu	
940 945 950	
cgg cgc gcg cgg cac cgc ggc ggc ccc cga gcg ggg ccc ccg gag gcg	3052
Arg Arg Ala Arg His Arg Gly Gly Pro Arg Ala Gly Pro Arg Glu Ala	
955 960 965	
gag agc ggg gag gag ccg gcg cgg cgg cac cgg gcc cgg cac aag gcg	3100
Glu Ser Gly Glu Glu Pro Ala Arg Arg His Arg Ala Arg His Lys Ala	
970 975 980 985	
cag cct gct cac gag gct gtg gag aag gag acc acg gag aag gag gcc	3148
Gln Pro Ala His Glu Ala Val Glu Lys Glu Thr Thr Glu Lys Glu Ala	
990 995 1000	
acg gag aag gag gct gag ata gtg gaa gcc gac aag gaa aag gag ctc	3196
Thr Glu Lys Glu Ala Glu Ile Val Glu Ala Asp Lys Glu Lys Glu Leu	
1005 1010 1015	
cgg aac cac cag ccc ccg gag cca cac tgt gac ctg gag acc agt ggg	3244
Arg Asn His Gln Pro Arg Glu Pro His Cys Asp Leu Glu Thr Ser Gly	
1020 1025 1030	
act gtg act gtg ggt ccc atg cac aca ctg ccc agc acc tgt ctc cag	3292
Thr Val Thr Val Gly Pro Met His Thr Leu Pro Ser Thr Cys Leu Gln	
1035 1040 1045	
aag gtg gag gaa cag cca gag gat gca gac aat cag cgg aac gtc act	3340
Lys Val Glu Glu Gln Pro Glu Asp Ala Asp Asn Gln Arg Asn Val Thr	
1050 1055 1060 1065	
cgc atg ggc agt cag ccc cca gac ccg aac act att gta cat atc cca	3388
Arg Met Gly Ser Gln Pro Pro Asp Pro Asn Thr Ile Val His Ile Pro	
1070 1075 1080	
gtg atg ctg acg ggc cct ctt ggg gaa gcc acg gtc gtt ccc agt ggt	3436
Val Met Leu Thr Gly Pro Leu Gly Glu Ala Thr Val Val Pro Ser Gly	
1085 1090 1095	
aac gtg gac ctg gaa agc caa gca gag ggg aag aag gag gtg gaa gcg	3484
Asn Val Asp Leu Glu Ser Gln Ala Glu Gly Lys Lys Glu Val Glu Ala	
1100 1105 1110	
gat gac gtg atg agg agc ggc ccc ccg cct atc gtc cca tac agc tcc	3532
Asp Asp Val Met Arg Ser Gly Pro Arg Pro Ile Val Pro Tyr Ser Ser	
1115 1120 1125	

atg ttc tgt tta agc ccc acc aac ctg ctc cgc cgc ttc tgc cac tac	3580
Met Phe Cys Leu Ser Pro Thr Asn Leu Leu Arg Arg Phe Cys His Tyr	
1130 1135 1140 1145	
atc gtg acc atg agg tac ttc gag gtg gtc att ctc gtg gtc atc gcc	3628
Ile Val Thr Met Arg Tyr Phe Glu Val Val Ile Leu Val Val Ile Ala	
1150 1155 1160	
ttg agc agc atc gcc ctg gct gct gag gac cca gtg cgc aca gac tcg	3676
Leu Ser Ser Ile Ala Leu Ala Ala Glu Asp Pro Val Arg Thr Asp Ser	
1165 1170 1175	
ccc agg aac aac gct ctg aaa tac ctg gat tac att ttc act ggt gtc	3724
Pro Arg Asn Asn Ala Leu Lys Tyr Leu Asp Tyr Ile Phe Thr Gly Val	
1180 1185 1190	
ttt acc ttt gag atg gtg ata aag atg atc gac ttg gga ctg ctg ctt	3772
Phe Thr Phe Glu Met Val Ile Lys Met Ile Asp Leu Gly Leu Leu Leu	
1195 1200 1205	
cac cct gga gcc tat ttc cgg gac ttg tgg aac att ctg gac ttc att	3820
His Pro Gly Ala Tyr Phe Arg Asp Leu Trp Asn Ile Leu Asp Phe Ile	
1210 1215 1220 1225	
gtg gtc agt ggc gcc ctg gtg gcg ttt gct ttc tca gga tcc aaa ggg	3868
Val Val Ser Gly Ala Leu Val Ala Phe Ala Phe Ser Gly Ser Lys Gly	
1230 1235 1240	
aaa gac atc aat acc atc aag tct ctg aga gtc ctt cgt gtc ctg cgg	3916
Lys Asp Ile Asn Thr Ile Lys Ser Leu Arg Val Leu Arg Val Leu Arg	
1245 1250 1255	
ccc ctc aag acc atc aaa cgg ctg ccc aag ctc aag gct gtg ttt gac	3964
Pro Leu Lys Thr Ile Lys Arg Leu Pro Lys Leu Lys Ala Val Phe Asp	
1260 1265 1270	
tgt gtg gtg aac tcc ctg aag aat gtc ctc aac atc ttg att gtc tac	4012
Cys Val Val Asn Ser Leu Lys Asn Val Leu Asn Ile Leu Ile Val Tyr	
1275 1280 1285	
atg ctc ttc atg ttc ata ttt gcc gtc att gcg gtg cag ctc ttc aaa	4060
Met Leu Phe Met Phe Ile Phe Ala Val Ile Ala Val Gln Leu Phe Lys	
1290 1295 1300 1305	
ggg aag ttt ttc tac tgc aca gat gaa tcc aag gag ctg gag agg gac	4108
Gly Lys Phe Phe Tyr Cys Thr Asp Glu Ser Lys Glu Leu Glu Arg Asp	
1310 1315 1320	
tgc agg ggt cag tat ttg gat tat gag aag gag gaa gtg gaa gct cag	4156
Cys Arg Gly Gln Tyr Leu Asp Tyr Glu Lys Glu Glu Val Glu Ala Gln	
1325 1330 1335	
ccc agg cag tgg aag aaa tac gac ttt cac tac gac aat gtg ctc tgg	4204
Pro Arg Gln Trp Lys Lys Tyr Asp Phe His Tyr Asp Asn Val Leu Trp	
1340 1345 1350	
gct ctg ctg acg ctg ttc aca gtg tcc acg gga gaa ggc tgg ccc atg	4252
Ala Leu Leu Thr Leu Phe Thr Val Ser Thr Gly Glu Gly Trp Pro Met	
1355 1360 1365	
gtg ctg aaa cac tcc gtg gat gcc acc tat gag gag cag ggt cca agc	4300
Val Leu Lys His Ser Val Asp Ala Thr Tyr Glu Glu Gln Gly Pro Ser	
1370 1375 1380 1385	
cct ggg tac cgc atg gag ctg tcc atc ttc tac gtg gtc tac ttt gtg	4348
Pro Gly Tyr Arg Met Glu Leu Ser Ile Phe Tyr Val Val Tyr Phe Val	
1390 1395 1400	
gtc ttt ccc ttc ttc ttc gtc aac atc ttt gtg gct ttg atc atc atc	4396
Val Phe Pro Phe Phe Val Asn Ile Phe Val Ala Leu Ile Ile Ile	
1405 1410 1415	
acc ttc cag gag cag ggg gac aag gtg atg tct gaa tgc agc ctg gag	4444
Thr Phe Gln Glu Gln Gly Asp Lys Val Met Ser Glu Cys Ser Leu Glu	
1420 1425 1430	
aag aac gag agg gct tgc att gac ttc gcc atc agc gcc aaa ccc ctg	4492
Lys Asn Glu Arg Ala Cys Ile Asp Phe Ala Ile Ser Ala Lys Pro Leu	
1435 1440 1445	

aca cgg tac atg ccc caa aac cgg cag tgc ttc cag tat aag acg tgg	4540
Thr Arg Tyr Met Pro Gln Asn Arg Gln Ser Phe Gln Tyr Lys Thr Trp	
1450 1455 1460 1465	
aca ttt gtg gtc tcc ccg ccc ttt gaa tac ttc atc atg gcc atg ata	4588
Thr Phe Val Val Ser Pro Pro Phe Glu Tyr Phe Ile Met Ala Met Ile	
1470 1475 1480	
gcc ctc aac act gtg ctg atg atg aag ttc tat gat gca ccc tat	4636
Ala Leu Asn Thr Val Val Leu Met Met Lys Phe Tyr Asp Ala Pro Tyr	
1485 1490 1495	
gag tac gag ctg atg ctg aaa tgc ctg aac atc gtg ttc aca tcc atg	4684
Glu Tyr Glu Leu Met Leu Lys Cys Leu Asn Ile Val Phe Thr Ser Met	
1500 1505 1510	
ttc tcc atg gaa tgc gtg ctg aag atc atc gcc ttt ggg gtg ctg aac	4732
Phe Ser Met Glu Cys Val Leu Lys Ile Ile Ala Phe Gly Val Leu Asn	
1515 1520 1525	
tat ttc aga gat gcc tgg aat gtc ttt gac ttt gtc act gtg ttg gga	4780
Tyr Phe Arg Asp Ala Trp Asn Val Phe Asp Phe Val Thr Val Leu Gly	
1530 1535 1540 1545	
agt att act gat att tta gta aca gag att gcg gaa acg aac aat ttc	4828
Ser Ile Thr Asp Ile Leu Val Thr Glu Ile Ala Glu Thr Asn Asn Phe	
1550 1555 1560	
atc aac ctc agc ttc ctc cgc ctc ttt cga gct gcg cgg ctg atc aag	4876
Ile Asn Leu Ser Phe Leu Arg Leu Phe Arg Ala Ala Arg Leu Ile Lys	
1565 1570 1575	
ctg ctc cgc cag ggc tac acc atc cgc atc ctg ctg tgg acc ttt gtc	4924
Leu Leu Arg Gln Gly Tyr Thr Ile Arg Ile Leu Leu Trp Thr Phe Val	
1580 1585 1590	
cag tcc ttc aag gcc ctg ccc tac gtg tgt ctg ctc att gcc atg ctg	4972
Gln Ser Phe Lys Ala Leu Pro Tyr Val Cys Leu Leu Ile Ala Met Leu	
1595 1600 1605	
ttc ttc atc tac gcc atc atc ggc atg cag gtg ttt ggg aat att gcc	5020
Phe Phe Ile Tyr Ala Ile Ile Gly Met Gln Val Phe Gly Asn Ile Ala	
1610 1615 1620 1625	
ctg gat gat gac acc agc atc aac cgc cac aac aac ttc cgg acg ttt	5068
Leu Asp Asp Asp Thr Ser Ile Asn Arg His Asn Asn Phe Arg Thr Phe	
1630 1635 1640	
ttg caa gcc ctg atg ctg ctg ttc agg agc gcc acg ggg gag gcc tgg	5116
Leu Gln Ala Leu Met Leu Leu Phe Arg Ser Ala Thr Gly Glu Ala Trp	
1645 1650 1655	
cac gag atc atg ctg tcc tgc ctg agc aac cag gcc tgt gat gag cag	5164
His Glu Ile Met Leu Ser Cys Leu Ser Asn Gln Ala Cys Asp Glu Gln	
1660 1665 1670	
gcc aat gcc acc gag tgt gga agt gac ttt gcc tac ttc tac ttc gtc	5212
Ala Asn Ala Thr Glu Cys Gly Ser Asp Phe Ala Tyr Phe Tyr Phe Val	
1675 1680 1685	
tcc ttc atc ttc ctg tgc tcc ttt ctg atg ttg aac ctc ttt gtg gct	5260
Ser Phe Ile Phe Leu Cys Ser Phe Leu Met Leu Asn Leu Phe Val Ala	
1690 1695 1700 1705	
gtg atc atg gac aat ttt gag tac ctc acg cgg gac tct tcc atc cta	5308
Val Ile Met Asp Asn Phe Glu Tyr Leu Thr Arg Asp Ser Ser Ile Leu	
1710 1715 1720	
ggt cct cac cac ttg gat gag ttc atc cgg gtc tgg gct gaa tac gac	5356
Gly Pro His His Leu Asp Glu Phe Ile Arg Val Trp Ala Glu Tyr Asp	
1725 1730 1735	
ccg gct gcg tgt ggg cgc atc agt tac aat gac atg ttt gag atg ctg	5404
Pro Ala Ala Cys Gly Arg Ile Ser Tyr Asn Asp Met Phe Glu Met Leu	
1740 1745 1750	
aaa cac atg tcc ccg cct ctg ggg ctg ggg aag aaa tgc cct gct cga	5452
Lys His Met Ser Pro Pro Leu Gly Leu Gly Lys Lys Cys Pro Ala Arg	
1755 1760 1765	

gtt gct tac aag cgc ctg gtt cgc atg aac atg ccc atc tcc aac gag	5500
Val Ala Tyr Lys Arg Leu Val Arg Met Asn Met Pro Ile Ser Asn Glu	
1770 1775 1780 1785	
gac atg act gtt cac ttc acg tcc acg ctg atg gcc ctc atc cgg acg	5548
Asp Met Thr Val His Phe Thr Ser Thr Leu Met Ala Leu Ile Arg Thr	
1790 1795 1800	
gca ctg gag atc aag ctg gcc cca gct ggg aca aag cag cat cag tgt	5596
Ala Leu Glu Ile Lys Leu Ala Pro Ala Gly Thr Lys Gln His Gln Cys	
1805 1810 1815	
gac gcg gag ttg agg aag gag att tcc gtt gtg tgg gcc aat ctg ccc	5644
Asp Ala Glu Leu Arg Lys Glu Ile Ser Val Val Trp Ala Asn Leu Pro	
1820 1825 1830	
cag aag act ttg gac ttg ctg gta cca ccc cat aag cct gat gag atg	5692
Gln Lys Thr Leu Asp Leu Leu Val Pro Pro His Lys Pro Asp Glu Met	
1835 1840 1845	
aca gtg ggg aag gtt tat gca gct ctg atg ata ttt gac ttc tac aag	5740
Thr Val Gly Lys Val Tyr Ala Ala Leu Met Ile Phe Asp Phe Tyr Lys	
1850 1855 1860 1865	
cag aac aaa acc acc aga gac cag atg cag cag gct cct gga ggc ctc	5788
Gln Asn Lys Thr Thr Arg Asp Gln Met Gln Gln Ala Pro Gly Gly Leu	
1870 1875 1880	
tcc cag atg ggt cct gtg tcc ctg ttc cac cct ctg aag gcc acc ctg	5836
Ser Gln Met Gly Pro Val Ser Leu Phe His Pro Leu Lys Ala Thr Leu	
1885 1890 1895	
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Glu Gln Thr Gln Pro Ala Val Leu Arg Gly Ala Arg Val Phe Leu Arg	
1900 1905 1910	
cag aag agt tcc acc tcc ctc agc aat ggc ggg gcc ata caa aac caa	5932
Gln Lys Ser Ser Thr Ser Leu Ser Asn Gly Gly Ala Ile Gln Asn Gln	
1915 1920 1925	
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Glu Ser Gly Ile Lys Glu Ser Val Ser Trp Gly Thr Gln Arg Thr Gln	
1930 1935 1940 1945	
gat gca ccc cat gag gcc agg cca ccc ctg gag cgt ggc cac tcc aca	6028
Asp Ala Pro His Glu Ala Arg Pro Pro Leu Glu Arg Gly His Ser Thr	
1950 1955 1960	
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Glu Ile Pro Val Gly Arg Ser Gly Ala Leu Ala Val Asp Val Gln Met	
1965 1970 1975	
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Gln Ser Ile Thr Arg Arg Gly Pro Asp Gly Glu Pro Gln Pro Gly Leu	
1980 1985 1990	
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Glu Ser Gln Gly Arg Ala Ala Ser Met Pro Arg Leu Ala Ala Glu Thr	
1995 2000 2005	
cag ccc gtc aca gat gcc agc ccc atg aag cgc tcc atc tcc acg ctg	6220
Gln Pro Val Thr Asp Ala Ser Pro Met Lys Arg Ser Ile Ser Thr Leu	
2010 2015 2020 2025	
gcc cag cgg ccc cgt ggg act cat ctt tgc agc acc acc ccg gac cgc	6268
Ala Gln Arg Pro Arg Gly Thr His Leu Cys Ser Thr Thr Pro Asp Arg	
2030 2035 2040	
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Pro Pro Pro Ser Gln Ala Ser Ser His His His His Arg Cys His	
2045 2050 2055	
cgc cgc agg gac agg aag cag agg tcc ctg gag aag ggg ccc agc ctg	6364
Arg Arg Arg Asp Arg Lys Gln Arg Ser Leu Glu Lys Gly Pro Ser Leu	
2060 2065 2070	
tct gcc gat atg gat ggc gca cca agc agt gct gtg ggg ccg ggg ctg	6412
Ser Ala Asp Met Asp Gly Ala Pro Ser Ser Ala Val Gly Pro Gly Leu	
2075 2080 2085	

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ccc ccg gga gag ggg cct aca ggc tgc cgg cgg gaa cga gag cgc cgg      6460
Pro Pro Gly Glu Gly Pro Thr Gly Cys Arg Arg Glu Arg Glu Arg Arg
2090                      2095                      2100                      2105
cag gag cgg ggc cgg tcc cag gag cgg agg cag ccc tca tcc tcc tcc      6508
Gln Glu Arg Gly Arg Ser Gln Glu Arg Arg Gln Pro Ser Ser Ser Ser
                      2110                      2115                      2120
tcg gag aag cag cgc ttc tac tcc tgc gac cgc ttt ggg ggc cgt gag      6556
Ser Glu Lys          2125          2130          2135
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Pro Pro Lys Pro Lys Pro Ser Leu Ser Ser His Pro Thr Ser Pro Thr
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Pro Gly Ser Arg Ile Gly Ser Asp Pro Tyr Leu Gly Gln Arg Leu Asp
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Ser Glu Ala Ser Val His Ala Leu Pro Glu Asp Thr Leu Thr Phe Glu
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Glu Ala Val Ala Thr Asn Ser Gly Arg Ser Ser Arg Thr Ser Tyr Val
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Tyr His His Pro Asp Gln Asp His Trp Cys
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Tyr	Leu	Arg	Asn	Gly	Trp	Asn	Val	Met	Asp	Phe	Val	Val	Val	Leu	Thr
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Glu Lys Glu Thr Thr Glu Lys Glu Ala Thr Glu Lys Glu Ala Glu Ile
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1970 1975 1980
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2005 2010 2015
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Arg Val Leu Tyr Lys Gln Ser Ile Ala Gln Arg Ala Arg Thr Met Ala
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Ile Ala Asn Cys Ile Val Leu Ala Leu Glu Gln His Leu Pro Asp Gly
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Asp Lys Thr Pro Met Ser Glu Arg Leu Asp Asp Thr Glu Pro Tyr Phe
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Ile Gly Ile Phe Cys Phe Glu Ala Gly Ile Lys Ile Ile Ala Leu Gly
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His Lys Ala Cys Phe Pro Asn Ser Thr Asp Ala Glu Pro Val Gly Asp
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315		320		325			
acc tgg aac tgg ctc tac ttc atc cct ctc atc atc atc gcc tcc ttc						1180	
Thr Trp Asn Trp Leu Tyr Phe Ile Pro Leu Ile Ile Ile Gly Ser Phe							
330		335		340		345	
ttc atg ctc aac ctg gtg ctg ggc gtg ctc tcg ggg gag ttt gcc aag						1228	
Phe Met Leu Asn Leu Val Leu Gly Val Leu Ser Gly Glu Phe Ala Lys							
350		355		360			
gag cga gag agg gtg gag aac cgc cgc gcc ttc ctg aag ctg cgc cgg						1276	
Glu Arg Glu Arg Val Glu Asn Arg Arg Ala Phe Leu Lys Leu Arg Arg							
365		370		375			
cag cag cag atc gag cga gag ctc aac ggg tac ctg gag tgg atc ttc						1324	
Gln Gln Gln Ile Glu Arg Glu Leu Asn Gly Tyr Leu Glu Trp Ile Phe							
380		385		390			
aag gcg gag gaa gtc atg ctg gcc gag gag gac agg aat gca gag gag						1372	
Lys Ala Glu Glu Val Met Leu Ala Glu Glu Asp Arg Asn Ala Glu Glu							
395		400		405			
aag tcc cct ttg gac gtg ctg aag aga gcg gcc acc aag aag agc aga						1420	
Lys Ser Pro Leu Asp Val Leu Lys Arg Ala Thr Lys Lys Ser Arg							
410		415		420		425	
aat gac ctg atc cac gca gag gag gga gag gac cgg ttt gca gat ctc						1468	
Asn Asp Leu Ile His Ala Glu Glu Gly Glu Asp Arg Phe Ala Asp Leu							
430		435		440			
tgt gct gtt gga tcc ccc ttc gcc cgc gcc agc ctc aag agc ggg aag						1516	
Cys Ala Val Gly Ser Pro Phe Ala Arg Ala Ser Leu Lys Ser Gly Lys							
445		450		455			
aca gag agc tcg tca tac ttc cgg agg aag gag aag atg ttc cgg ttt						1564	
Thr Glu Ser Ser Ser Tyr Phe Arg Arg Lys Glu Lys Met Phe Arg Phe							
460		465		470			
ttt atc cgg cgc atg gtg aag gct cag agc ttc tac tgg gtg gtg ctg						1612	
Phe Ile Arg Arg Met Val Lys Ala Gln Ser Phe Tyr Trp Val Val Leu							
475		480		485			
tgc gtg gtg gcc ctg aac aca ctg tgt gtg gcc atg gtg cat tac aac						1660	
Cys Val Val Ala Leu Asn Thr Leu Cys Val Ala Met Val His Tyr Asn							
490		495		500		505	
cag ccg cgg cgg ctt acc acg acc ctg tat ttt gca gag ttt gtt ttc						1708	
Gln Pro Arg Arg Leu Thr Thr Thr Leu Tyr Phe Ala Glu Phe Val Phe							
510		515		520			
ctg ggt ctc ttc ctc aca gag atg tcc ctg aag atg tat ggc ctg ggg						1756	
Leu Gly Leu Phe Leu Thr Glu Met Ser Leu Lys Met Tyr Gly Leu Gly							
525		530		535			
ccc aga agc tac ttc cgg tcc tcc ttc aac tgc ttc gac ttt ggg gtc						1804	
Pro Arg Ser Tyr Phe Arg Ser Ser Phe Asn Cys Phe Asp Phe Gly Val							
540		545		550			
atc gtg ggg agc gtc ttt gaa gtg gtc tgg gcg gcc atc aag ccg gga						1852	
Ile Val Gly Ser Val Phe Glu Val Val Trp Ala Ala Ile Lys Pro Gly							
555		560		565			
agc tcc ttt ggg atc agt gtg ctg cgg gcc ctc cgc ctg ctg agg atc						1900	
Ser Ser Phe Gly Ile Ser Val Leu Arg Ala Leu Arg Leu Leu Arg Ile							
570		575		580		585	
ttc aaa gtc acg aag tac tgg agc tcc ctg cgg aac ctg gtg gtg tcc						1948	
Phe Lys Val Thr Lys Tyr Trp Ser Ser Leu Arg Asn Leu Val Val Ser							
590		595		600			
ctg ctg aac tcc atg aag tcc atc atc agc ctg ctc ttc ttg ctc ttc						1996	
Leu Leu Asn Ser Met Lys Ser Ile Ile Ser Leu Leu Phe Leu Leu Phe							

ctg ttc att	605	gtg gtc ttc gcc	610	ctg ctg ggg atg cag	615	ctg ttt ggg gga	2044
Leu Phe Ile		Val Val Phe Ala		Leu Leu Gly Met Gln		Leu Phe Gly Gly	
	620		625		630		
cag ttc aac		ttc cag gat gag act		ccc aca acc aac		ttc gac acc ttc	2092
Gln Phe Asn		Phe Gln Asp Glu Thr		Pro Thr Thr Asn Phe		Asp Thr Phe	
	635		640		645		
cct gcc gcc		atc ctc act gtc ttc		cag atc ctg acg gga		gag gac tgg	2140
Pro Ala Ala		Ile Leu Thr Val Phe		Gln Ile Leu Thr Gly		Glu Asp Trp	
	650		655		660	665	
aat gca gtg		atg tat cac ggg atc		gaa tcg caa ggc ggc		gtc agc aaa	2188
Asn Ala Val		Met Tyr His Gly Ile		Glu Ser Gln Gly Gly		Val Ser Lys	
	670		675		680		
ggc atg ttc		tcg tcc ttt tac ttc		att gtc ctg aca ctg		ttc gga aac	2236
Gly Met Phe		Ser Ser Phe Tyr Phe		Ile Val Leu Thr Leu		Phe Gly Asn	
	685		690		695		
tac act ctg		ctg aat gtc ttt ctg		gcc atc gct gtg gac		aac ctg gcc	2284
Tyr Thr Leu		Leu Leu Asn Val Phe		Leu Ala Ile Ala Val		Asp Asn Leu Ala	
	700		705		710		
aac gcc caa		gag ctg acc aag gat		gaa gag gag atg gaa		gaa gca gcc	2332
Asn Ala Gln		Glu Leu Thr Lys Asp		Glu Glu Glu Met Glu		Glu Ala Ala	
	715		720		725		
aat cag aag		ctt gct ctg caa aag		gcc aaa gaa gtg gct		gaa gtc agc	2380
Asn Gln Lys		Leu Ala Leu Gln Lys		Ala Lys Glu Val Ala		Glu Val Ser	
	730		735		740	745	
ccc atg tct		gcc gcg aac atc tcc		atc gcc gcc agg cag		cag aac tcg	2428
Pro Met Ser		Ala Ala Asn Ile Ser		Ile Ala Ala Arg Gln		Gln Asn Ser	
	750		755		760		
gcc aag gcg		cgc tcg gtg tgg gag		cag cgg gcc agc cag		cta cgg ctg	2476
Ala Lys Ala		Arg Ser Val Trp Glu		Gln Arg Ala Ser Gln		Leu Arg Leu	
	765		770		775		
cag aac ctg		cgg gcc agc tgc gag		gcg ctg tac agc gag		atg gac ccc	2524
Gln Asn Leu		Arg Ala Ser Cys Glu		Ala Leu Tyr Ser Glu		Met Asp Pro	
	780		785		790		
gag gag cgg		ctg cgc ttc gcc act		acg cgc cac ctg cgg		ccc gac atg	2572
Glu Glu Arg		Leu Arg Phe Ala Thr		Thr Arg His Leu Arg		Pro Asp Met	
	795		800		805		
aag acg cac		ctg gac cgg ccg ctg		gtg gtg gag ctg ggc		cgc gac ggc	2620
Lys Thr His		Leu Asp Arg Pro Leu		Val Val Glu Leu Gly		Arg Asp Gly	
	810		815		820	825	
gcg cgg ggg		ccc gtg gga ggc aaa		gcc cga cct gag gct		gcg gag gcc	2668
Ala Arg Gly		Pro Val Gly Gly Lys		Ala Arg Pro Glu Ala		Ala Glu Ala	
	830		835		840		
ccc gag ggc		gtc gac cct ccg cgc		agg cac cac cgg		cac cgc gac aag	2716
Pro Glu Gly		Val Asp Pro Pro Arg		Arg His His Arg His		Arg Asp Lys	
	845		850		855		
gac aag acc		ccc gcg gcg ggg gac		cag gac cga gca gag		gcc ccg aag	2764
Asp Lys Thr		Pro Ala Ala Gly Asp		Gln Asp Arg Ala Glu		Ala Pro Lys	
	860		865		870		
gcg gag agc		ggg gag ccc ggt gcc		cgg gag gag cgg		ccg ccg cac	2812
Ala Glu Ser		Gly Glu Pro Gly Ala		Arg Glu Glu Arg Pro		Arg Pro His	
	875		880		885		
cgc agc cac		agc aag gag gcc gcg		ggg ccc ccg gag gcg		cgg agc gag	2860
Arg Ser His		Ser Lys Glu Ala Ala		Gly Pro Pro Glu Ala		Arg Ser Glu	
	890		895		900	905	
cgc ggc cga		ggc cca ggc ccc gag		ggc ggc cgg cgg		cac cac cgg	2908
Arg Gly Arg		Gly Pro Gly Pro Glu		Gly Gly Arg Arg His		His Arg Arg	
	910		915		920		
ggc tcc ccg		gag gag gcg gcc gag		cgg gag ccc cga cgc		cac cgc gcg	2956
Gly Ser Pro		Glu Glu Ala Ala Glu		Arg Glu Pro Arg Arg		His Arg Ala	

	925	930	935	
cac cgg cac cag gat ccg agc aag gag tgc gcc ggc gcc aag ggc gag				3004
His Arg His Gln Asp Pro Ser Lys Glu Cys Ala Gly Ala Lys Gly Glu				
	940	945	950	
cgg cgc gcg cgg cac cgc ggc ggc ccc cga gcg ggg ccc cgg gag gcg				3052
Arg Arg Ala Arg His Arg Gly Gly Pro Arg Ala Gly Pro Arg Glu Ala				
	955	960	965	
gag agc ggg gag gag ccg gcg cgg cgg cac cgg gcc cgg cac aag gcg				3100
Glu Ser Gly Glu Glu Pro Ala Arg Arg His Arg Ala Arg His Lys Ala				
	970	975	980	985
cag cct gct cac gag gct gtg gag aag gag acc acg gag aag gag gcc				3148
Gln Pro Ala His Glu Ala Val Glu Lys Glu Thr Thr Glu Lys Glu Ala				
	990	995	1000	
acg gag aag gag gct gag ata gtg gaa gcc gac aag gaa aag gag ctc				3196
Thr Glu Lys Glu Ala Glu Ile Val Glu Ala Asp Lys Glu Lys Glu Leu				
	1005	1010	1015	
cgg aac cac cag ccc cgg gag cca cac tgt gac ctg gag acc agt ggg				3244
Arg Asn His Gln Pro Arg Glu Pro His Cys Asp Leu Glu Thr Ser Gly				
	1020	1025	1030	
act gtg act gtg ggt ccc atg cac aca ctg ccc agc acc tgt ctc cag				3292
Thr Val Thr Val Gly Pro Met His Thr Leu Pro Ser Thr Cys Leu Gln				
	1035	1040	1045	
aag gtg gag gaa cag cca gag gat gca gac aat cag cgg aac gtc act				3340
Lys Val Glu Glu Gln Pro Glu Asp Ala Asp Asn Gln Arg Asn Val Thr				
	1050	1055	1060	1065
cgc atg ggc agt cag ccc cca gac ccg aac act att gta cat atc cca				3388
Arg Met Gly Ser Gln Pro Pro Asp Pro Asn Thr Ile Val His Ile Pro				
	1070	1075	1080	
gtg atg ctg acg ggc cct ctt ggg gaa gcc acg gtc gtt ccc agt ggt				3436
Val Met Leu Thr Gly Pro Leu Gly Glu Ala Thr Val Val Pro Ser Gly				
	1085	1090	1095	
aac gtg gac ctg gaa agc caa gca gag ggg aag aag gag gtg gaa gcg				3484
Asn Val Asp Leu Glu Ser Gln Ala Glu Gly Lys Lys Glu Val Glu Ala				
	1100	1105	1110	
gat gac gtg atg agg agc ggc ccc cgg cct atc gtc cca tac agc tcc				3532
Asp Asp Val Met Arg Ser Gly Pro Arg Pro Ile Val Pro Tyr Ser Ser				
	1115	1120	1125	
atg ttc tgt tta agc ccc acc aac ctg ctc cgc cgc ttc tgc cac tac				3580
Met Phe Cys Leu Ser Pro Thr Asn Leu Leu Arg Arg Phe Cys His Tyr				
	1130	1135	1140	1145
atc gtg acc atg agg tac ttc gag gtg gtc att ctc gtg gtc atc gcc				3628
Ile Val Thr Met Arg Tyr Phe Glu Val Val Ile Leu Val Val Ile Ala				
	1150	1155	1160	
ttg agc agc atc gcc ctg gct gct gag gac cca gtg cgc aca gac tcg				3676
Leu Ser Ser Ile Ala Leu Ala Ala Glu Asp Pro Val Arg Thr Asp Ser				
	1165	1170	1175	
ccc agg aac aac gct ctg aaa tac ctg gat tac att ttc act ggt gtc				3724
Pro Arg Asn Asn Ala Leu Lys Tyr Leu Asp Tyr Ile Phe Thr Gly Val				
	1180	1185	1190	
ttt acc ttt gag atg gtg ata aag atg atc gac ttg gga ctg ctg ctt				3772
Phe Thr Phe Glu Met Val Ile Lys Met Ile Asp Leu Gly Leu Leu Leu				
	1195	1200	1205	
cac cct gga gcc tat ttc cgg gac ttg tgg aac att ctg gac ttc att				3820
His Pro Gly Ala Tyr Phe Arg Asp Leu Trp Asn Ile Leu Asp Phe Ile				
	1210	1215	1220	1225
gtg gtc agt ggc gcc ctg gtg gcg ttt gct ttc tca gga tcc aaa ggg				3868
Val Val Ser Gly Ala Leu Val Ala Phe Ala Phe Ser Gly Ser Lys Gly				
	1230	1235	1240	
aaa gac atc aat acc atc aag tct ctg aga gtc ctt cgt gtc ctg cgg				3916
Lys Asp Ile Asn Thr Ile Lys Ser Leu Arg Val Leu Arg Val Leu Arg				

ccc ctc aag acc atc aaa cgg ctg	ccc aag ctc aag gct gtg ttt gac	3964
Pro Leu Lys Thr Ile Lys Arg Leu	Pro Lys Leu Lys Ala Val Phe Asp	
1245	1250	1255
tgt gtg gtg aac tcc ctg aag aat gtc ctc aac atc ttg att gtc tac		4012
Cys Val Val Asn Ser Leu Lys Asn Val Leu Asn Ile Leu Ile Val Tyr		
1260	1265	1270
atg ctc ttc atg ttc ata ttt gcc gtc att gcg gtg cag ctc ttc aaa		4060
Met Leu Phe Met Phe Ile Phe Ala Val Ile Ala Val Gln Leu Phe Lys		
1275	1280	1285
ggg aag ttt ttc tac tgc aca gat gaa tcc aag gag ctg gag agg gac		4108
Gly Lys Phe Phe Tyr Cys Thr Asp Glu Ser Lys Glu Leu Glu Arg Asp		
1290	1295	1300
tgc agg ggt cag tat ttg gat tat gag aag gag gaa gtg gaa gct cag		4156
Cys Arg Gly Gln Tyr Leu Asp Tyr Glu Lys Glu Glu Val Glu Ala Gln		
1310	1315	1320
ccc agg cag tgg aag aaa tac gac ttt cac tac gac aat gtg ctc tgg		4204
Pro Arg Gln Trp Lys Lys Tyr Asp Phe His Tyr Asp Asn Val Leu Trp		
1325	1330	1335
gct ctg ctg acg ctg ttc aca gtg tcc acg gga gaa gcc tgg ccc atg		4252
Ala Leu Leu Thr Leu Phe Thr Val Ser Thr Gly Glu Gly Trp Pro Met		
1340	1345	1350
gtg ctg aaa cac tcc gtg gat gcc acc tat gag gag cag ggt cca agc		4300
Val Leu Lys His Ser Val Asp Ala Thr Tyr Glu Glu Gln Gly Pro Ser		
1355	1360	1365
cct ggg tac cgc atg gag ctg tcc atc ttc tac gtg gtc tac ttt gtg		4348
Pro Gly Tyr Arg Met Glu Leu Ser Ile Phe Tyr Val Val Tyr Phe Val		
1370	1375	1380
gtc ttt ccc ttc ttc ttc gtc aac atc ttt gtg gct ttg atc atc atc		4396
Val Phe Pro Phe Phe Val Asn Ile Phe Val Ala Leu Ile Ile Ile		
1385	1390	1395
acc ttc cag gag cag ggg gac aag gtg atg tct gaa tgc agc ctg gag		4444
Thr Phe Gln Glu Gln Gly Asp Lys Val Met Ser Glu Cys Ser Leu Glu		
1400	1405	1410
aag aac gag agg gct tgc att gac ttc gcc atc agc gcc aaa ccc ctg		4492
Lys Asn Glu Arg Ala Cys Ile Asp Phe Ala Ile Ser Ala Lys Pro Leu		
1415	1420	1425
aca cgg tac atg ccc caa aac cgg cag tgc ttc cag tat aag acg tgg		4540
Thr Arg Tyr Met Pro Gln Asn Arg Gln Ser Phe Gln Tyr Lys Thr Trp		
1430	1435	1440
aca ttt gtg gtc tcc ccg ccc ttt gaa tac ttc atc atg gcc atg ata		4588
Thr Phe Val Val Ser Pro Pro Phe Glu Tyr Phe Ile Met Ala Met Ile		
1445	1450	1455
gcc ctc aac act gtg gtg ctg atg atg aag ttc tat gat gca ccc tat		4636
Ala Leu Asn Thr Val Val Leu Met Met Lys Phe Tyr Asp Ala Pro Tyr		
1460	1465	1470
gag tac gag ctg atg ctg aaa tgc ctg aac atc gtg ttc aca tcc atg		4684
Glu Tyr Glu Leu Met Leu Lys Cys Leu Asn Ile Val Phe Thr Ser Met		
1475	1480	1485
ttc tcc atg gaa tgc gtg ctg aag atc atc gcc ttt ggg gtg ctg aac		4732
Phe Ser Met Glu Cys Val Leu Lys Ile Ile Ala Phe Gly Val Leu Asn		
1490	1495	1500
tat ttc aga gat gcc tgg aat gtc ttt gac ttt gtc act gtg ttg gga		4780
Tyr Phe Arg Asp Ala Trp Asn Val Phe Asp Phe Val Thr Val Leu Gly		
1505	1510	1515
agt att act gat att tta gta aca gag att gcg gaa acg aac aat ttc		4828
Ser Ile Thr Asp Ile Leu Val Thr Glu Ile Ala Glu Thr Asn Asn Phe		
1520	1525	1530
atc aac ctc agc ttc ctc cgc ctc ttt cga gct gcg cgg ctg atc aag		4876
Ile Asn Leu Ser Phe Leu Arg Leu Phe Arg Ala Ala Arg Leu Ile Lys		
1535	1540	1545
1550	1555	1560

1565	1570	1575	
ctg ctc cgc cag ggc tac acc atc cgc atc ctg ctg tgg acc ttt gtc			4924
Leu Leu Arg Gln Gly Tyr Thr Ile Arg Ile Leu Leu Trp Thr Phe Val			
1580	1585	1590	
cag tcc ttc aag gcc ctg ccc tac gtg tgt ctg ctc att gcc atg ctg			4972
Gln Ser Phe Lys Ala Leu Pro Tyr Val Cys Leu Leu Ile Ala Met Leu			
1595	1600	1605	
ttc ttc atc tac gcc atc atc ggc atg cag gtg ttt ggg aat att gcc			5020
Phe Phe Ile Tyr Ala Ile Ile Gly Met Gln Val Phe Gly Asn Ile Ala			
1610	1615	1620	1625
ctg gat gat gac acc agc atc aac cgc cac aac aac ttc cgg acg ttt			5068
Leu Asp Asp Asp Thr Ser Ile Asn Arg His Asn Asn Phe Arg Thr Phe			
1630	1635	1640	
ttg caa gcc ctg atg ctg ctg ttc agg agc gcc acg ggg gag gcc tgg			5116
Leu Gln Ala Leu Met Leu Leu Phe Arg Ser Ala Thr Gly Glu Ala Trp			
1645	1650	1655	
cac gag atc atg ctg tcc tgc ctg agc aac cag gcc tgt gat gag cag			5164
His Glu Ile Met Leu Ser Cys Leu Ser Asn Gln Ala Cys Asp Glu Gln			
1660	1665	1670	
gcc aat gcc acc gag tgt gga agt gac ttt gcc tac ttc tac ttc gtc			5212
Ala Asn Ala Thr Glu Cys Gly Ser Asp Phe Ala Tyr Phe Tyr Phe Val			
1675	1680	1685	
tcc ttc atc ttc ctg tgc tcc ttt ctg atg ttg aac ctc ttt gtg gct			5260
Ser Phe Ile Phe Leu Cys Ser Phe Leu Met Leu Asn Leu Phe Val Ala			
1690	1695	1700	1705
gtg atc atg gac aat ttt gag tac ctc acg cgg gac tct tcc atc cta			5308
Val Ile Met Asp Asn Phe Glu Tyr Leu Thr Arg Asp Ser Ser Ile Leu			
1710	1715	1720	
ggt cct cac cac ttg gat gag ttc atc cgg gtc tgg gct gaa tac gac			5356
Gly Pro His His Leu Asp Glu Phe Ile Arg Val Trp Ala Glu Tyr Asp			
1725	1730	1735	
cgc gct gcg tgt ggg cgc atc agt tac aat gac atg ttt gag atg ctg			5404
Pro Ala Ala Cys Gly Arg Ile Ser Tyr Asn Asp Met Phe Glu Met Leu			
1740	1745	1750	
aaa cac atg tcc ccg cct ctg ggg ctg ggg aag aaa tgc cct gct cga			5452
Lys His Met Ser Pro Pro Leu Gly Leu Gly Lys Lys Cys Pro Ala Arg			
1755	1760	1765	
gtt gct tac aag cgc ctg gtt cgc atg aac atg ccc atc tcc aac gag			5500
Val Ala Tyr Lys Arg Leu Val Arg Met Asn Met Pro Ile Ser Asn Glu			
1770	1775	1780	1785
gac atg act gtt cac ttc acg tcc acg ctg atg gcc ctc atc cgg acg			5548
Asp Met Thr Val His Phe Thr Ser Thr Leu Met Ala Leu Ile Arg Thr			
1790	1795	1800	
gca ctg gag atc aag ctg gcc cca gct ggg aca aag cag cat cag tgt			5596
Ala Leu Glu Ile Lys Leu Ala Pro Ala Gly Thr Lys Gln His Gln Cys			
1805	1810	1815	
gac gcg gag ttg agg aag gag att tcc gtt gtg tgg gcc aat ctg ccc			5644
Asp Ala Glu Leu Arg Lys Glu Ile Ser Val Val Trp Ala Asn Leu Pro			
1820	1825	1830	
cag aag act ttg gac ttg ctg gta cca ccc cat aag cct gat gag atg			5692
Gln Lys Thr Leu Asp Leu Leu Val Pro Pro His Lys Pro Asp Glu Met			
1835	1840	1845	
aca gtg ggg aag gtt tat gca gct ctg atg ata ttt gac ttc tac aag			5740
Thr Val Gly Lys Val Tyr Ala Ala Leu Met Ile Phe Asp Phe Tyr Lys			
1850	1855	1860	1865
cag aac aaa acc acc aga gac cag atg cag cag gct cct gga ggc ctc			5788
Gln Asn Lys Thr Thr Arg Asp Gln Met Gln Gln Ala Pro Gly Gly Leu			
1870	1875	1880	
tcc cag atg ggt cct gtg tcc ctg ttc cac cct ctg aag gcc acc ctg			5836
Ser Gln Met Gly Pro Val Ser Leu Phe His Pro Leu Lys Ala Thr Leu			

	1885	1890	1895	
	gag cag aca cag ccg gct gtg ctc cga gga gcc cgg gtt ttc ctt cga			5884
	Glu Gln Thr Gln Pro Ala Val Leu Arg Gly Ala Arg Val Phe Leu Arg			
	1900	1905	1910	
	cag aag agt tcc acc tcc ctc agc aat ggc ggg gcc ata caa aac caa			5932
	Gln Lys Ser Ser Thr Ser Leu Ser Asn Gly Gly Ala Ile Gln Asn Gln			
	1915	1920	1925	
	gag agt ggc atc aaa gag tct gtc tcc tgg ggc act caa agg acc cag			5980
	Glu Ser Gly Ile Lys Glu Ser Val Ser Trp Gly Thr Gln Arg Thr Gln			
1930		1935	1940	1945
	gat gca ccc cat gag gcc agg cca ccc ctg gag cgt ggc cac tcc aca			6028
	Asp Ala Pro His Glu Ala Arg Pro Pro Leu Glu Arg Gly His Ser Thr			
	1950	1955	1960	
	gag atc cct gtg ggg cgg tca gga gca ctg gct gtg gac gtt cag atg			6076
	Glu Ile Pro Val Gly Arg Ser Gly Ala Leu Ala Val Asp Val Gln Met			
	1965	1970	1975	
	cag agc ata acc cgg agg ggc cct gat ggg gag ccc cag cct ggg ctg			6124
	Gln Ser Ile Thr Arg Arg Gly Pro Asp Gly Glu Pro Gln Pro Gly Leu			
	1980	1985	1990	
	gag agc cag ggt cga gcg gcc tcc atg ccc cgc ctt gcg gcc gag act			6172
	Glu Ser Gln Gly Arg Ala Ala Ser Met Pro Arg Leu Ala Ala Glu Thr			
	1995	2000	2005	
	cag ccc gtc aca gat gcc agc ccc atg aag cgc tcc atc tcc acg ctg			6220
	Gln Pro Val Thr Asp Ala Ser Pro Met Lys Arg Ser Ile Ser Thr Leu			
2010		2015	2020	2025
	gcc cag cgg ccc cgt ggg act cat ctt tgc agc acc acc ccg gac cgc			6268
	Ala Gln Arg Pro Arg Gly Thr His Leu Cys Ser Thr Thr Pro Asp Arg			
	2030	2035	2040	
	cca ccc cct agc cag gcg tcg tcg cac cac cac cac cgc tgc cac			6316
	Pro Pro Pro Ser Gln Ala Ser Ser His His His His Arg Cys His			
	2045	2050	2055	
	cgc cgc agg gac agg aag cag agg tcc ctg gag aag ggg ccc agc ctg			6364
	Arg Arg Arg Asp Arg Lys Gln Arg Ser Leu Glu Lys Gly Pro Ser Leu			
	2060	2065	2070	
	tct gcc gat atg gat ggc gca cca agc agt gct gtg ggg ccg ggg ctg			6412
	Ser Ala Asp Met Asp Gly Ala Pro Ser Ser Ala Val Gly Pro Gly Leu			
	2075	2080	2085	
	ccc ccg gga gag ggg cct aca ggc tgc cgg cgg gaa cga gag cgc cgg			6460
	Pro Pro Gly Glu Gly Pro Thr Gly Cys Arg Arg Glu Arg Glu Arg Arg			
2090		2095	2100	2105
	cag gag cgg ggc cgg tcc cag gag cgg agg cag ccc tca tcc tcc tcc			6508
	Gln Glu Arg Gly Arg Ser Gln Glu Arg Arg Gln Pro Ser Ser Ser Ser			
	2110	2115	2120	
	tcg gag aag cag cgc ttc tac tcc tgc gac cgc ttt ggg ggc cgt gag			6556
	Ser Glu Lys Gln Arg Phe Tyr Ser Cys Asp Arg Phe Gly Gly Arg Glu			
	2125	2130	2135	
	ccc ccg aag ccc aag ccc tcc ctc agc agc cac cca acg tcg cca aca			6604
	Pro Pro Lys Pro Lys Pro Ser Leu Ser Ser His Pro Thr Ser Pro Thr			
	2140	2145	2150	
	gct ggc cag gag ccg gga ccc cac cca cag gcc ggc tca gcc gtg ggc			6652
	Ala Gly Gln Glu Pro Gly Pro His Pro Gln Ala Gly Ser Ala Val Gly			
	2155	2160	2165	
	ttt ccg aac aca acg ccc tgc tgc aga gag acc ccc tca gcc agc ccc			6700
	Phe Pro Asn Thr Thr Pro Cys Cys Arg Glu Thr Pro Ser Ala Ser Pro			
2170		2175	2180	2185
	tgg ccc ctg gct ctc gaa ttg gct ctg acc ctt acc tgg ggc agc gtc			6748
	Trp Pro Leu Ala Leu Glu Leu Ala Leu Thr Leu Thr Trp Gly Ser Val			
	2190	2195	2200	
	tgg aca gtg agg cct ctg tcc acg ccc tgc ctg agg aca cgc tca ctt			6796
	Trp Thr Val Arg Pro Leu Ser Thr Pro Cys Leu Arg Thr Arg Ser Leu			

2205	2210	2215	
tcg agg agg ctg tgg cca cca act cgg gcc gct cct cca gga ctt cct			6844
Ser Arg Arg Leu Trp Pro Pro Thr Arg Ala Ala Pro Pro Gly Leu Pro			
2220	2225	2230	
acg tgt cct ccc tgacctccca gtctcaccct ctccgcgcgcg tgcccaacgg ttacc			6901
Thr Cys Pro Pro			
2235			
actgcaccct gggactcagc tcgggtggcc gagcacggca cagctaccac caccctgacc			6961
aagaccactg gtgctagctg caccgtgacc gctcagacgc ctgcatgcag caggcgtgtg			7021
ttccagtggg tgagttttat catccacacg gggcagtcgg ccctcggggg aggccttgcc			7081
caccttggtg aggcctctgt ggccctctcc tccctctcct cccctctttt actctagacg			7141
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 <212> PRT
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<400> 8

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Gly	Gly	Glu	Arg	Ala	Arg	Gly	Gly	Gly	Ala	Gly	Gly	Ala	Gly	Gly	Pro
			20					25					30		
Gly	Pro	Gly	Gly	Leu	Gln	Pro	Gly	Gln	Arg	Val	Leu	Tyr	Lys	Gln	Ser
			35				40						45		
Ile	Ala	Gln	Arg	Ala	Arg	Thr	Met	Ala	Leu	Tyr	Asn	Pro	Ile	Pro	Val
			50				55					60			
Lys	Gln	Asn	Cys	Phe	Thr	Val	Asn	Arg	Ser	Leu	Phe	Val	Phe	Ser	Glu
			65			70				75					80
Asp	Asn	Val	Val	Arg	Lys	Tyr	Ala	Lys	Arg	Ile	Thr	Glu	Trp	Pro	Pro
				85					90					95	
Phe	Glu	Tyr	Met	Ile	Leu	Ala	Thr	Ile	Ile	Ala	Asn	Cys	Ile	Val	Leu
			100					105					110		
Ala	Leu	Glu	Gln	His	Leu	Pro	Asp	Gly	Asp	Lys	Thr	Pro	Met	Ser	Glu
			115				120					125			
Arg	Leu	Asp	Asp	Thr	Glu	Pro	Tyr	Phe	Ile	Gly	Ile	Phe	Cys	Phe	Glu
			130				135					140			
Ala	Gly	Ile	Lys	Ile	Ile	Ala	Leu	Gly	Phe	Val	Phe	His	Lys	Gly	Ser
				145			150			155					160
Tyr	Leu	Arg	Asn	Gly	Trp	Asn	Val	Met	Asp	Phe	Val	Val	Val	Leu	Thr
				165					170					175	
Gly	Ile	Leu	Ala	Thr	Ala	Gly	Thr	Asp	Phe	Asp	Leu	Arg	Thr	Leu	Arg
			180					185					190		
Ala	Val	Arg	Val	Leu	Arg	Pro	Leu	Lys	Leu	Val	Ser	Gly	Ile	Pro	Ser
			195				200					205			
Leu	Gln	Val	Val	Leu	Lys	Ser	Ile	Met	Lys	Ala	Met	Val	Pro	Leu	Leu
				210			215				220				
Gln	Ile	Gly	Leu	Leu	Leu	Phe	Phe	Ala	Ile	Leu	Met	Phe	Ala	Ile	Ile
				225			230				235			240	
Gly	Leu	Glu	Phe	Tyr	Met	Gly	Lys	Phe	His	Lys	Ala	Cys	Phe	Pro	Asn
				245					250					255	
Ser	Thr	Asp	Ala	Glu	Pro	Val	Gly	Asp	Phe	Pro	Cys	Gly	Lys	Glu	Ala
			260					265					270		
Pro	Ala	Arg	Leu	Cys	Glu	Gly	Asp	Thr	Glu	Cys	Arg	Glu	Tyr	Trp	Pro
			275				280					285			
Gly	Pro	Asn	Phe	Gly	Ile	Thr	Asn	Phe	Asp	Asn	Ile	Leu	Phe	Ala	Ile
			290				295				300				
Leu	Thr	Val	Phe	Gln	Cys	Ile	Thr	Met	Glu	Gly	Trp	Thr	Asp	Ile	Leu
				305			310				315			320	
Tyr	Asn	Thr	Asn	Asp	Ala	Ala	Gly	Asn	Thr	Trp	Asn	Trp	Leu	Tyr	Phe

Ile	Pro	Leu	Ile	Ile	Ile	Gly	Ser	Phe	Phe	Met	Leu	Asn	Leu	Val	Leu	325	330	335
Gly	Val	Leu	Ser	Gly	Glu	Phe	Ala	Lys	Glu	Arg	Glu	Arg	Val	Glu	Asn	340	345	350
Arg	Arg	Ala	Phe	Leu	Lys	Leu	Arg	Arg	Gln	Gln	Gln	Ile	Glu	Arg	Glu	355	360	365
Leu	Asn	Gly	Tyr	Leu	Glu	Trp	Ile	Phe	Lys	Ala	Glu	Glu	Val	Met	Leu	370	375	380
Ala	Glu	Glu	Asp	Arg	Asn	Ala	Glu	Glu	Lys	Ser	Pro	Leu	Asp	Val	Leu	385	390	395
Lys	Arg	Ala	Ala	Thr	Lys	Lys	Ser	Arg	Asn	Asp	Leu	Ile	His	Ala	Glu	405	410	415
Glu	Gly	Glu	Asp	Arg	Phe	Ala	Asp	Leu	Cys	Ala	Val	Gly	Ser	Pro	Phe	420	425	430
Ala	Arg	Ala	Ser	Leu	Lys	Ser	Gly	Lys	Thr	Glu	Ser	Ser	Ser	Tyr	Phe	435	440	445
Arg	Arg	Lys	Glu	Lys	Met	Phe	Arg	Phe	Phe	Ile	Arg	Arg	Met	Val	Lys	450	455	460
Ala	Gln	Ser	Phe	Tyr	Trp	Val	Val	Leu	Cys	Val	Val	Ala	Leu	Asn	Thr	465	470	475
Leu	Cys	Val	Ala	Met	Val	His	Tyr	Asn	Gln	Pro	Arg	Arg	Leu	Thr	Thr	485	490	495
Thr	Leu	Tyr	Phe	Ala	Glu	Phe	Val	Phe	Leu	Gly	Leu	Phe	Leu	Thr	Glu	500	505	510
Met	Ser	Leu	Lys	Met	Tyr	Gly	Leu	Gly	Pro	Arg	Ser	Tyr	Phe	Arg	Ser	515	520	525
Ser	Phe	Asn	Cys	Phe	Asp	Phe	Gly	Val	Ile	Val	Gly	Ser	Val	Phe	Glu	530	535	540
Val	Val	Trp	Ala	Ala	Ile	Lys	Pro	Gly	Ser	Ser	Phe	Gly	Ile	Ser	Val	545	550	555
Leu	Arg	Ala	Leu	Arg	Leu	Leu	Arg	Ile	Phe	Lys	Val	Thr	Lys	Tyr	Trp	565	570	575
Ser	Ser	Leu	Arg	Asn	Leu	Val	Val	Ser	Leu	Leu	Asn	Ser	Met	Lys	Ser	580	585	590
Ile	Ile	Ser	Leu	Leu	Phe	Leu	Phe	Leu	Phe	Ile	Val	Val	Phe	Ala		595	600	605
Leu	Leu	Gly	Met	Gln	Leu	Phe	Gly	Gly	Gln	Phe	Asn	Phe	Gln	Asp	Glu	610	615	620
Thr	Pro	Thr	Thr	Asn	Phe	Asp	Thr	Phe	Pro	Ala	Ala	Ile	Leu	Thr	Val	625	630	635
Phe	Gln	Ile	Leu	Thr	Gly	Glu	Asp	Trp	Asn	Ala	Val	Met	Tyr	His	Gly	645	650	655
Ile	Glu	Ser	Gln	Gly	Gly	Val	Ser	Lys	Gly	Met	Phe	Ser	Ser	Phe	Tyr	660	665	670
Phe	Ile	Val	Leu	Thr	Leu	Phe	Gly	Asn	Tyr	Thr	Leu	Leu	Asn	Val	Phe	675	680	685
Leu	Ala	Ile	Ala	Val	Asp	Asn	Leu	Ala	Asn	Ala	Gln	Glu	Leu	Thr	Lys	690	695	700
Asp	Glu	Glu	Glu	Met	Glu	Glu	Ala	Ala	Asn	Gln	Lys	Leu	Ala	Leu	Gln	705	710	715
Lys	Ala	Lys	Glu	Val	Ala	Glu	Val	Ser	Pro	Met	Ser	Ala	Ala	Asn	Ile	725	730	735
Ser	Ile	Ala	Ala	Arg	Gln	Gln	Asn	Ser	Ala	Lys	Ala	Arg	Ser	Val	Trp	740	745	750
Glu	Gln	Arg	Ala	Ser	Gln	Leu	Arg	Leu	Gln	Asn	Leu	Arg	Ala	Ser	Cys	755	760	765
Glu	Ala	Leu	Tyr	Ser	Glu	Met	Asp	Pro	Glu	Glu	Arg	Leu	Arg	Phe	Ala	770	775	780
Thr	Thr	Arg	His	Leu	Arg	Pro	Asp	Met	Lys	Thr	His	Leu	Asp	Arg	Pro	785	790	795

				805					810					815	
Leu	Val	Val	Glu	Leu	Gly	Arg	Asp	Gly	Ala	Arg	Gly	Pro	Val	Gly	Gly
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Lys	Ala	Arg	Pro	Glu	Ala	Ala	Glu	Ala	Pro	Glu	Gly	Val	Asp	Pro	Pro
		835					840					845			
Arg	Arg	His	His	Arg	His	Arg	Asp	Lys	Asp	Lys	Thr	Pro	Ala	Ala	Gly
	850					855					860				
Asp	Gln	Asp	Arg	Ala	Glu	Ala	Pro	Lys	Ala	Glu	Ser	Gly	Glu	Pro	Gly
865				870						875				880	
Ala	Arg	Glu	Glu	Arg	Pro	Arg	Pro	His	Arg	Ser	His	Ser	Lys	Glu	Ala
			885					890						895	
Ala	Gly	Pro	Pro	Glu	Ala	Arg	Ser	Glu	Arg	Gly	Arg	Gly	Pro	Gly	Pro
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Glu	Gly	Gly	Arg	Arg	His	His	Arg	Arg	Gly	Ser	Pro	Glu	Glu	Ala	Ala
	915						920					925			
Glu	Arg	Glu	Pro	Arg	Arg	His	Arg	Ala	His	Arg	His	Gln	Asp	Pro	Ser
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Lys	Glu	Cys	Ala	Gly	Ala	Lys	Gly	Glu	Arg	Arg	Ala	Arg	His	Arg	Gly
945			950							955				960	
Gly	Pro	Arg	Ala	Gly	Pro	Arg	Glu	Ala	Glu	Ser	Gly	Glu	Glu	Pro	Ala
			965						970					975	
Arg	Arg	His	Arg	Ala	Arg	His	Lys	Ala	Gln	Pro	Ala	His	Glu	Ala	Val
		980						985					990		
Glu	Lys	Glu	Thr	Thr	Glu	Lys	Glu	Ala	Thr	Glu	Lys	Glu	Ala	Glu	Ile
	995					1000						1005			
Val	Glu	Ala	Asp	Lys	Glu	Lys	Glu	Leu	Arg	Asn	His	Gln	Pro	Arg	Glu
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Pro	His	Cys	Asp	Leu	Glu	Thr	Ser	Gly	Thr	Val	Thr	Val	Gly	Pro	Met
1025			1030							1035				1040	
His	Thr	Leu	Pro	Ser	Thr	Cys	Leu	Gln	Lys	Val	Glu	Glu	Gln	Pro	Glu
			1045						1050					1055	
Asp	Ala	Asp	Asn	Gln	Arg	Asn	Val	Thr	Arg	Met	Gly	Ser	Gln	Pro	Pro
		1060						1065					1070		
Asp	Pro	Asn	Thr	Ile	Val	His	Ile	Pro	Val	Met	Leu	Thr	Gly	Pro	Leu
	1075						1080					1085			
Gly	Glu	Ala	Thr	Val	Val	Pro	Ser	Gly	Asn	Val	Asp	Leu	Glu	Ser	Gln
	1090					1095					1100				
Ala	Glu	Gly	Lys	Lys	Glu	Val	Glu	Ala	Asp	Asp	Val	Met	Arg	Ser	Gly
1105				1110						1115				1120	
Pro	Arg	Pro	Ile	Val	Pro	Tyr	Ser	Ser	Met	Phe	Cys	Leu	Ser	Pro	Thr
			1125						1130					1135	
Asn	Leu	Leu	Arg	Arg	Phe	Cys	His	Tyr	Ile	Val	Thr	Met	Arg	Tyr	Phe
		1140						1145					1150		
Glu	Val	Val	Ile	Leu	Val	Val	Ile	Ala	Leu	Ser	Ser	Ile	Ala	Leu	Ala
	1155					1160						1165			
Ala	Glu	Asp	Pro	Val	Arg	Thr	Asp	Ser	Pro	Arg	Asn	Asn	Ala	Leu	Lys
	1170					1175					1180				
Tyr	Leu	Asp	Tyr	Ile	Phe	Thr	Gly	Val	Phe	Thr	Phe	Glu	Met	Val	Ile
1185			1190						1195					1200	
Lys	Met	Ile	Asp	Leu	Gly	Leu	Leu	Leu	His	Pro	Gly	Ala	Tyr	Phe	Arg
			1205						1210					1215	
Asp	Leu	Trp	Asn	Ile	Leu	Asp	Phe	Ile	Val	Val	Ser	Gly	Ala	Leu	Val
		1220					1225						1230		
Ala	Phe	Ala	Phe	Ser	Gly	Ser	Lys	Gly	Lys	Asp	Ile	Asn	Thr	Ile	Lys
		1235					1240					1245			
Ser	Leu	Arg	Val	Leu	Arg	Val	Leu	Arg	Pro	Leu	Lys	Thr	Ile	Lys	Arg
	1250					1255						1260			
Leu	Pro	Lys	Leu	Lys	Ala	Val	Phe	Asp	Cys	Val	Val	Asn	Ser	Leu	Lys
1265			1270							1275				1280	
Asn	Val	Leu	Asn	Ile	Leu	Ile	Val	Tyr	Met	Leu	Phe	Met	Phe	Ile	Phe

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Ala Val Ile	Ala Val Gln Leu Phe Lys Gly Lys Phe Phe Tyr Cys Thr				
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Asp Glu Ser	Lys Glu Leu Glu Arg Asp Cys Arg Gly Gln Tyr Leu Asp				
	1315		1320		1325
Tyr Glu Lys	Glu Glu Val Glu Ala Gln Pro Arg Gln Trp Lys Lys Tyr				
	1330		1335		1340
Asp Phe His	Tyr Asp Asn Val Leu Trp Ala Leu Leu Thr Leu Phe Thr				
1345		1350		1355	1360
Val Ser Thr	Gly Glu Gly Trp Pro Met Val Leu Lys His Ser Val Asp				
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Ala Thr Tyr	Glu Glu Gln Gly Pro Ser Pro Gly Tyr Arg Met Glu Leu				
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Ser Ile Phe	Tyr Val Val Tyr Phe Val Val Phe Pro Phe Phe Val				
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Asn Ile Phe	Val Ala Leu Ile Ile Ile Thr Phe Gln Glu Gln Gly Asp				
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Lys Val Met	Ser Glu Cys Ser Leu Glu Lys Asn Glu Arg Ala Cys Ile				
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Asp Phe Ala	Ile Ser Ala Lys Pro Leu Thr Arg Tyr Met Pro Gln Asn				
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Arg Gln Ser	Phe Gln Tyr Lys Thr Trp Thr Phe Val Val Ser Pro Pro				
	1460		1465		1470
Phe Glu Tyr	Phe Ile Met Ala Met Ile Ala Leu Asn Thr Val Val Leu				
	1475		1480		1485
Met Met Lys	Phe Tyr Asp Ala Pro Tyr Glu Tyr Glu Leu Met Leu Lys				
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Cys Leu Asn	Ile Val Phe Thr Ser Met Phe Ser Met Glu Cys Val Leu				
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Lys Ile Ile	Ala Phe Gly Val Leu Asn Tyr Phe Arg Asp Ala Trp Asn				
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Val Phe Asp	Phe Val Thr Val Leu Gly Ser Ile Thr Asp Ile Leu Val				
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Thr Glu Ile	Ala Glu Thr Asn Asn Phe Ile Asn Leu Ser Phe Leu Arg				
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Leu Phe Arg	Ala Ala Arg Leu Ile Lys Leu Leu Arg Gln Gly Tyr Thr				
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Ile Arg Ile	Leu Leu Trp Thr Phe Val Gln Ser Phe Lys Ala Leu Pro				
1585		1590		1595	1600
Tyr Val Cys	Leu Leu Ile Ala Met Leu Phe Phe Ile Tyr Ala Ile Ile				
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Gly Met Gln	Val Phe Gly Asn Ile Ala Leu Asp Asp Asp Thr Ser Ile				
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Asn Arg His	Asn Asn Phe Arg Thr Phe Leu Gln Ala Leu Met Leu Leu				
	1635		1640		1645
Phe Arg Ser	Ala Thr Gly Glu Ala Trp His Glu Ile Met Leu Ser Cys				
	1650		1655		1660
Leu Ser Asn	Gln Ala Cys Asp Glu Gln Ala Asn Ala Thr Glu Cys Gly				
1665		1670		1675	1680
Ser Asp Phe	Ala Tyr Phe Tyr Phe Val Ser Phe Ile Phe Leu Cys Ser				
	1685		1690		1695
Phe Leu Met	Leu Asn Leu Phe Val Ala Val Ile Met Asp Asn Phe Glu				
	1700		1705		1710
Tyr Leu Thr	Arg Asp Ser Ser Ile Leu Gly Pro His His Leu Asp Glu				
	1715		1720		1725
Phe Ile Arg	Val Trp Ala Glu Tyr Asp Pro Ala Ala Cys Gly Arg Ile				
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Ser Tyr Asn	Asp Met Phe Glu Met Leu Lys His Met Ser Pro Pro Leu				
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Gly Leu Gly	Lys Lys Cys Pro Ala Arg Val Ala Tyr Lys Arg Leu Val				

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Arg Met Asn Met Pro Ile Ser Asn Glu Asp Met Thr Val His Phe Thr					
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Ser Thr Leu Met Ala Leu Ile Arg Thr Ala Leu Glu Ile Lys Leu Ala					
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Pro Ala Gly Thr Lys Gln His Gln Cys Asp Ala Glu Leu Arg Lys Glu					
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Ile Ser Val Val Trp Ala Asn Leu Pro Gln Lys Thr Leu Asp Leu Leu					
1825		1830		1835	1840
Val Pro Pro His Lys Pro Asp Glu Met Thr Val Gly Lys Val Tyr Ala					
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Ala Leu Met Ile Phe Asp Phe Tyr Lys Gln Asn Lys Thr Thr Arg Asp					
	1860		1865		1870
Gln Met Gln Gln Ala Pro Gly Gly Leu Ser Gln Met Gly Pro Val Ser					
	1875		1880		1885
Leu Phe His Pro Leu Lys Ala Thr Leu Glu Gln Thr Gln Pro Ala Val					
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Leu Arg Gly Ala Arg Val Phe Leu Arg Gln Lys Ser Ser Thr Ser Leu					
1905		1910		1915	1920
Ser Asn Gly Gly Ala Ile Gln Asn Gln Glu Ser Gly Ile Lys Glu Ser					
	1925		1930		1935
Val Ser Trp Gly Thr Gln Arg Thr Gln Asp Ala Pro His Glu Ala Arg					
	1940		1945		1950
Pro Pro Leu Glu Arg Gly His Ser Thr Glu Ile Pro Val Gly Arg Ser					
	1955		1960		1965
Gly Ala Leu Ala Val Asp Val Gln Met Gln Ser Ile Thr Arg Arg Gly					
	1970		1975		1980
Pro Asp Gly Glu Pro Gln Pro Gly Leu Glu Ser Gln Gly Arg Ala Ala					
1985		1990		1995	2000
Ser Met Pro Arg Leu Ala Ala Glu Thr Gln Pro Val Thr Asp Ala Ser					
	2005		2010		2015
Pro Met Lys Arg Ser Ile Ser Thr Leu Ala Gln Arg Pro Arg Gly Thr					
	2020		2025		2030
His Leu Cys Ser Thr Thr Pro Asp Arg Pro Pro Pro Ser Gln Ala Ser					
	2035		2040		2045
Ser His His His His His Arg Cys His Arg Arg Arg Asp Arg Lys Gln					
	2050		2055		2060
Arg Ser Leu Glu Lys Gly Pro Ser Leu Ser Ala Asp Met Asp Gly Ala					
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Pro Ser Ser Ala Val Gly Pro Gly Leu Pro Pro Gly Glu Gly Pro Thr					
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Gly Cys Arg Arg Glu Arg Glu Arg Arg Gln Glu Arg Gly Arg Ser Gln					
	2100		2105		2110
Glu Arg Arg Gln Pro Ser Ser Ser Ser Glu Lys Gln Arg Phe Tyr					
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Ser Cys Asp Arg Phe Gly Gly Arg Glu Pro Pro Lys Pro Lys Pro Ser					
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Leu Ser Ser His Pro Thr Ser Pro Thr Ala Gly Gln Glu Pro Gly Pro					
2145		2150		2155	2160
His Pro Gln Ala Gly Ser Ala Val Gly Phe Pro Asn Thr Thr Pro Cys					
	2165		2170		2175
Cys Arg Glu Thr Pro Ser Ala Ser Pro Trp Pro Leu Ala Leu Glu Leu					
	2180		2185		2190
Ala Leu Thr Leu Thr Trp Gly Ser Val Trp Thr Val Arg Pro Leu Ser					
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Thr Pro Cys Leu Arg Thr Arg Ser Leu Ser Arg Arg Leu Trp Pro Pro					
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Thr Arg Ala Ala Pro Pro Gly Leu Pro Thr Cys Pro Pro					
2225		2230		2235	

1765 1770 1775 1780 1785 1790 1795 1800 1805 1810 1815 1820 1825 1830 1835 1840 1845 1850 1855 1860 1865 1870 1875 1880 1885 1890 1895 1900 1905 1910 1915 1920 1925 1930 1935 1940 1945 1950 1955 1960 1965 1970 1975 1980 1985 1990 1995 2000 2005 2010 2015 2020 2025 2030 2035 2040 2045 2050 2055 2060 2065 2070 2075 2080 2085 2090 2095 2100 2105 2110 2115 2120 2125 2130 2135 2140 2145 2150 2155 2160 2165 2170 2175 2180 2185 2190 2195 2200 2205 2210 2215 2220 2225 2230 2235

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Gly Gly Glu Arg Ala Arg Gly Gly Gly Ala Gly Gly Ala Gly Gly Pro	
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Gly Gln Gly Gly Leu Pro Pro Gly Gln Arg Val Leu Tyr Lys Gln Ser	
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Ile Ala Gln Arg Ala Arg Thr Met Ala Leu Tyr Asn Pro Ile Pro Val	
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Lys Gln Asn Cys Phe Thr Val Asn Arg Ser Leu Phe Val Phe Ser Glu	
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Asp Asn Val Val Arg Lys Tyr Ala Lys Arg Ile Thr Glu Trp Pro Pro	
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Phe Glu Tyr Met Ile Leu Ala Thr Ile Ala Asn Cys Ile Val Leu	
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Ala Leu Glu Gln His Leu Pro Asp Gly Asp Lys Thr Pro Met Ser Glu	
115 120 125	
cga ctg gat gac acg gaa cct tac ttc atc ggc atc ttt tgc ttc gag	432
Arg Leu Asp Asp Thr Glu Pro Tyr Phe Ile Gly Ile Phe Cys Phe Glu	
130 135 140	
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Ala Gly Ile Lys Ile Ile Ala Leu Gly Phe Val Phe His Lys Gly Ser	
145 150 155 160	
tac ctc cgg aat ggc tgg aac gtc atg gac ttc gtg gtg gtc ctc aca	528
Tyr Leu Arg Asn Gly Trp Asn Val Met Asp Phe Val Val Val Leu Thr	
165 170 175	
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Glu Ile Leu Ala Thr Ala Gly Thr Asp Phe Asp Leu Arg Thr Leu Arg	
180 185 190	
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Ala Val Arg Val Leu Arg Pro Leu Lys Leu Val Ser Gly Ile Pro Ser	
195 200 205	
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Leu Gln Val Val Leu Lys Ser Ile Met Lys Ala Met Val Pro Leu Leu	
210 215 220	
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Gln Ile Gly Leu Leu Leu Phe Phe Ala Ile Leu Met Phe Ala Ile Ile	
225 230 235 240	
ggc ctc gag ttc tat atg ggc aaa ttc cat aag gcc tgc ttc ccc aac	768
Gly Leu Glu Phe Tyr Met Gly Lys Phe His Lys Ala Cys Phe Pro Asn	
245 250 255	
agc aca gat gca gag cct gtg ggt gac ttt cct tgt ggc aag gag gcc	816
Ser Thr Asp Ala Glu Pro Val Gly Asp Phe Pro Cys Gly Lys Glu Ala	

cct gct cgt ctg tgt gac agt gac acc gaa tgc cgg gag tac tgg cca	260	265	270	864
Pro Ala Arg Leu Cys Asp Ser Asp Thr Glu Cys Arg Glu Tyr Trp Pro				
gga ccc aac ttt ggc atc acc aat ttt gac aac atc ctg ttt gcc atc	275	280	285	912
Gly Pro Asn Phe Gly Ile Thr Asn Phe Asp Asn Ile Leu Phe Ala Ile				
ttg acc gtg ttc cag tgt atc acc atg gag ggc tgg act gac atc ctc	290	295	300	960
Leu Thr Val Phe Gln Cys Ile Thr Met Glu Gly Trp Thr Asp Ile Leu				
tac aat aca aat gat gcg gcc ggc aac acg tgg aac tgg ttg tac ttc	305	310	315	1008
Tyr Asn Thr Asn Asp Ala Ala Gly Asn Thr Trp Asn Trp Leu Tyr Phe				
atc ccc ctc atc atc att ggc tcc ttc atg ctc aac ctg gtg ctc	325	330	335	1056
Ile Pro Leu Ile Ile Ile Gly Ser Phe Met Leu Asn Leu Val Leu				
ggg gtg ctt tca gga gag ttt gcc aaa gag cgg gag cga gtc gag aac	340	345	350	1104
Gly Val Leu Ser Gly Glu Phe Ala Lys Glu Arg Glu Arg Val Glu Asn				
cgc cgt gcc ttc ctg aag ctc cgc agg cag cag cag att gag cga gaa	355	360	365	1152
Arg Arg Ala Phe Leu Lys Leu Arg Arg Gln Gln Gln Ile Glu Arg Glu				
ctg aat ggg tac ttg gag tgg atc ttc aag gcg gag gaa gtc atg ttg	370	375	380	1200
Leu Asn Gly Tyr Leu Glu Trp Ile Phe Lys Ala Glu Glu Val Met Leu				
gca gag gag gac aag aac gca gaa gag aag tcc cct ttg gat gca gtg	385	390	395	1248
Ala Glu Glu Asp Lys Asn Ala Glu Glu Lys Ser Pro Leu Asp Ala Val				
ttg aag aga gct gct acc aag aag agc cga aat gac ctc atc cat gca	405	410	415	1296
Leu Lys Arg Ala Ala Thr Lys Lys Ser Arg Asn Asp Leu Ile His Ala				
gaa gag ggg gag gac cgg ttt gta gac ctc tgt gct gct ggg tct ccc	420	425	430	1344
Glu Glu Gly Glu Asp Arg Phe Val Asp Leu Cys Ala Ala Gly Ser Pro				
ttt gct cgt gcc agc ctc aag agt ggg aag aca gag agc tca tcg tac	435	440	445	1392
Phe Ala Arg Ala Ser Leu Lys Ser Gly Lys Thr Glu Ser Ser Ser Tyr				
ttc cgg agg aag gag aag atg ttc cgg ttc ctt atc cgt cgt atg gtg	450	455	460	1440
Phe Arg Arg Lys Glu Lys Met Phe Arg Phe Leu Ile Arg Arg Met Val				
aaa gca cag agc ttc tac tgg gtg gta ctg tgc gtg gtg gcc ctg aac	465	470	475	1488
Lys Ala Gln Ser Phe Tyr Trp Val Val Leu Cys Val Val Ala Leu Asn				
acg ttg tgt gtg gcc atg gta cac tat aat cag cct cag cgg ctt acc	485	490	495	1536
Thr Leu Cys Val Ala Met Val His Tyr Asn Gln Pro Gln Arg Leu Thr				
act gca ctg tac ttt gca gag ttt gtt ttc ctg ggt ctc ttc ctc aca	500	505	510	1584
Thr Ala Leu Tyr Phe Ala Glu Phe Val Phe Leu Gly Leu Phe Leu Thr				
gag atg tcc ctg aag atg tac ggt cta ggg ccc aga agc tac ttc cgg	515	520	525	1632
Glu Met Ser Leu Lys Met Tyr Gly Leu Gly Pro Arg Ser Tyr Phe Arg				
tct tcc ttc aac tgc ttt gac ttt ggg gtg att gtg ggg agt atc ttt	530	535	540	1680
Ser Ser Phe Asn Cys Phe Asp Phe Gly Val Ile Val Gly Ser Ile Phe				
gaa gta gtc tgg gct gcc atc aag cca gga acc tcc ttc gga atc agt	545	550	555	1728
Glu Val Val Trp Ala Ala Ile Lys Pro Gly Thr Ser Phe Gly Ile Ser				
gtg ctg cgg gct ctc cga ctg ctg agg att ttc aaa gtc acc aag tat	565	570	575	1776
Val Leu Arg Ala Leu Arg Leu Leu Arg Ile Phe Lys Val Thr Lys Tyr				

tgg aac tcc ctg agg aac ctg gtt gtt tcc ctc ctc aac tcc atg aag	1824
Trp Asn Ser Leu Arg Asn Leu Val Val Ser Leu Leu Asn Ser Met Lys	
580 595 600 605	
tcc atc atc agc ctt ctc ttc ctg ctt ttc ctt ttc att gtg gtc ttc	1872
Ser Ile Ile Ser Leu Leu Phe Leu Leu Phe Leu Phe Ile Val Val Phe	
610 615 620	
gct ctg ttg ggg atg cag ctg ttt ggg gga cag ttc aac ttt caa gat	1920
Ala Leu Leu Gly Met Gln Leu Phe Gly Gly Gln Phe Asn Phe Gln Asp	
625 630 635 640	
gag act cca acc acc aat ttt gat acc ttc cca gct gcc atc ctc act	1968
Glu Thr Pro Thr Thr Asn Phe Asp Thr Phe Pro Ala Ala Ile Leu Thr	
645 650 655	
gtg ttt cag att ctg aca gga gag gac tgg aat gca gtc atg tat cat	2016
Val Phe Gln Ile Leu Thr Gly Glu Asp Trp Asn Ala Val Met Tyr His	
660 665 670	
ggg att gag tca caa gga gga gtc agc aaa ggc atg ttt tca tcc ttt	2064
Gly Ile Glu Ser Gln Gly Gly Val Ser Lys Gly Met Phe Ser Ser Phe	
675 680 685	
tac ttc atc gtc ctg aca ctg ttt gga aac tac acc ctg ttg aac gtt	2112
Tyr Phe Ile Val Leu Thr Leu Phe Gly Asn Tyr Thr Leu Leu Asn Val	
690 695 700	
ttc ttg gcc att gct gtg gac aac ctt gcc aat gcc cag gag ttg acc	2160
Phe Leu Ala Ile Ala Val Asp Asn Leu Ala Asn Ala Gln Glu Leu Thr	
705 710 715 720	
aag gat gaa gag gag atg gaa gag gca gcc aat cag aag ctt gct ctt	2208
Lys Asp Glu Glu Glu Met Glu Glu Ala Ala Asn Gln Lys Leu Ala Leu	
725 730 735	
cag aag gcc aaa gaa gta gct gaa gtc agc ccc atg tct gct gcc aac	2256
Gln Lys Ala Lys Glu Val Ala Glu Val Ser Pro Met Ser Ala Ala Asn	
740 745 750	
atc tcc att gct gcc agg cag cag aac tcg gcc aag gcg cgc tca gta	2304
Ile Ser Ile Ala Ala Arg Gln Gln Asn Ser Ala Lys Ala Arg Ser Val	
755 760 765	
tgg gag cag cgg gcc agt cag cta agg ctc cag aac ctg cgt gcc agc	2352
Trp Glu Gln Arg Ala Ser Gln Leu Arg Leu Gln Asn Leu Arg Ala Ser	
770 775 780	
tgt gag gca ctg tac agt gag atg gac ccg gag gag cgc ctg cgt tat	2400
Cys Glu Ala Leu Tyr Ser Glu Met Asp Pro Glu Glu Arg Leu Arg Tyr	
785 790 795 800	
gcc agc acg cgc cac gtg agg cca gac atg aag aca cac atg gac cga	2448
Ala Ser Thr Arg His Val Arg Pro Asp Met Lys Thr His Met Asp Arg	
805 810 815	
ccc cta gtg gtg gaa cct ggt cgg gat ggc ctg cgg gga ccc gcc ggg	2496
Pro Leu Val Val Glu Pro Gly Arg Asp Gly Leu Arg Gly Pro Ala Gly	
820 825 830	
aac aag tca aag cct gag ggc acg gag gcc acc gaa ggt gcg gat cca	2544
Asn Lys Ser Lys Pro Glu Gly Thr Glu Ala Thr Glu Gly Ala Asp Pro	
835 840 845	
cca cgc cga cac cac cgg cat cgt gat agg gac aag acc tca gcc tca	2592
Pro Arg Arg His His Arg His Arg Asp Arg Asp Lys Thr Ser Ala Ser	
850 855 860	
acc cct gct gga ggc gaa cag gac agg aca gac tgc cca aag gcc gaa	2640
Thr Pro Ala Gly Gly Glu Gln Asp Arg Thr Asp Cys Pro Lys Ala Glu	
865 870 875 880	
agc acc gag acc ggg gcc cgg gag gaa cgt gcg cgc cct cgt cga agt	2688
Ser Thr Glu Thr Gly Ala Arg Glu Glu Arg Ala Arg Pro Arg Arg Ser	
885 890 895	
cac agc aag gag gct cca ggg gct gac aca caa gtg cgt tgt gag cgc	2736
His Ser Lys Glu Ala Pro Gly Ala Asp Thr Gln Val Arg Cys Glu Arg	

	900	905	910	
agt aga cgt cac cac cgg cgc gga tcc ccg gag gag gcc act gaa cgg				2784
Ser Arg Arg His His Arg Arg Gly Ser Pro Glu Glu Ala Thr Glu Arg				
915	920	925		
gaa cct cgg cgc cac cgt gcc cac cgg cac gca cag gac tca agc aag				2832
Glu Pro Arg Arg His Arg Ala His Arg His Ala Gln Asp Ser Ser Lys				
930	935	940		
gaa ggc aag gag ggc act gca ccg gtg ctt gta ccc aag ggc gag cgt				2880
Glu Gly Lys Glu Gly Thr Ala Pro Val Leu Val Pro Lys Gly Glu Arg				
945	950	955	960	
cgc gca aga cat cga ggc ccg cgt acg ggc ccc cgt gag aca gag aac				2928
Arg Ala Arg His Arg Gly Pro Arg Thr Gly Pro Arg Glu Thr Glu Asn				
965	970	975		
agt gag gag ccc aca cgc agg cac cgt gca aag cat aag gtg cca cca				2976
Ser Glu Glu Pro Thr Arg Arg His Arg Ala Lys His Lys Val Pro Pro				
980	985	990		
aca ctt gag ccc cca gag agg gag gtt gca gag aag gag agc aac gtg				3024
Thr Leu Glu Pro Pro Glu Arg Glu Val Ala Glu Lys Glu Ser Asn Val				
995	1000	1005		
gtg gaa ggg gat aag gaa act cga aat cac cag ccc aag gaa cct cgc				3072
Val Glu Gly Asp Lys Glu Thr Arg Asn His Gln Pro Lys Glu Pro Arg				
1010	1015	1020		
tgt gac ctg gag gcc att ccg gtt aca ggc gtg ggc tct ctg cac atg				3120
Cys Asp Leu Glu Ala Ile Ala Val Thr Gly Val Gly Ser Leu His Met				
1025	1030	1035	1040	
ctg ccc agc acc tgt ctc cag aaa gtg gac gaa cag cca gag gat gca				3168
Leu Pro Ser Thr Cys Leu Gln Lys Val Asp Glu Gln Pro Glu Asp Ala				
1045	1050	1055		
gac aac cag cgt aat gtc acc cgg atg ggc agt cag ccc tca gac ccc				3216
Asp Asn Gln Arg Asn Val Thr Arg Met Gly Ser Gln Pro Ser Asp Pro				
1060	1065	1070		
agc acc act gtg cat gtc cca gtg aca ctg aca ggc cct ccc ggg gag				3264
Ser Thr Thr Val His Val Pro Val Thr Leu Thr Gly Pro Pro Gly Glu				
1075	1080	1085		
gcc act gta gtt ccc agt gct aac acg gac ctg gaa ggc caa gcg gag				3312
Ala Thr Val Val Pro Ser Ala Asn Thr Asp Leu Glu Gly Gln Ala Glu				
1090	1095	1100		
ggc aag aag gag gca gag gct gac gat gtg ctg aga aga ggc ccc agg				3360
Gly Lys Lys Glu Ala Glu Ala Asp Asp Val Leu Arg Arg Gly Pro Arg				
1105	1110	1115	1120	
ccc atc gtt ccc tac agt tcc atg ttc tgc ctc agc ccc acc aac cta				3408
Pro Ile Val Pro Tyr Ser Ser Met Phe Cys Leu Ser Pro Thr Asn Leu				
1125	1130	1135		
ctc cgt cgc ttc tgc cat tac att gtg acc atg cgg tac ttt gag atg				3456
Leu Arg Arg Phe Cys His Tyr Ile Val Thr Met Arg Tyr Phe Glu Met				
1140	1145	1150		
gtg att ctt gtg gtc atc gcc ttg agc agc att gcc ctg gct gct gag				3504
Val Ile Leu Val Val Ile Ala Leu Ser Ser Ile Ala Leu Ala Ala Glu				
1155	1160	1165		
gat ccc gtg cgg acc gac tca ttc cgg aac aat gct ctg aag tac atg				3552
Asp Pro Val Arg Thr Asp Ser Phe Arg Asn Asn Ala Leu Lys Tyr Met				
1170	1175	1180		
gac tac atc ttt aca gga gtc ttc acc ttt gag atg gtc ata aag atg				3600
Asp Tyr Ile Phe Thr Gly Val Phe Thr Phe Glu Met Val Ile Lys Met				
1185	1190	1195	1200	
ata gac ttg ggc ctg ctg ctg cac cct ggg gcc tac ttc cgg gac ctg				3648
Ile Asp Leu Gly Leu Leu Leu His Pro Gly Ala Tyr Phe Arg Asp Leu				
1205	1210	1215		
tgg aac att ctg gac ttc att gtt gtc agt gga gcc ctg gtg gca ttt				3696
Trp Asn Ile Leu Asp Phe Ile Val Val Ser Gly Ala Leu Val Ala Phe				

1220	1225	1230	
gca ttc tcg agc ttc atg gga gga tcc aaa ggg aaa gac atc aat acc			3744
Ala Phe Ser Ser Phe Met Gly Gly Ser Lys Gly Lys Asp Ile Asn Thr			
1235	1240	1245	
atc aag tct ctg aga gtc ctg cga gtc ctg cgg ccc ctc aag acc atc			3792
Ile Lys Ser Leu Arg Val Leu Arg Val Leu Arg Pro Leu Lys Thr Ile			
1250	1255	1260	
aag cgg ctg cct aaa ctc aag gct gtg ttt gac tgt gtg gtg aac tct			3840
Lys Arg Leu Pro Lys Leu Lys Ala Val Phe Asp Cys Val Val Asn Ser			
1265	1270	1275	1280
ctg aag aat gtc ttg aac atc ctg atc gtc tac atg ctc ttc atg ttt			3888
Leu Lys Asn Val Leu Asn Ile Leu Ile Val Tyr Met Leu Phe Met Phe			
1285	1290	1295	
ata ttt gcc gtc atc gcc gtc caa ctc ttc aaa ggg aag ttc ttt tac			3936
Ile Phe Ala Val Ile Ala Val Gln Leu Phe Lys Gly Lys Phe Phe Tyr			
1300	1305	1310	
tgc act gat gag tcc aag gag ctg gag cgg gac tgc agg ggt cag tat			3984
Cys Thr Asp Glu Ser Lys Glu Leu Glu Arg Asp Cys Arg Gly Gln Tyr			
1315	1320	1325	
ttg gat tat gag aag gaa gag gta gaa gcc cag cca agg cag tgg aag			4032
Leu Asp Tyr Glu Lys Glu Glu Val Glu Ala Gln Pro Arg Gln Trp Lys			
1330	1335	1340	
aaa tat gac ttc cac tat gac aat gtg ctc tgg gcc ttg ctg act ctg			4080
Lys Tyr Asp Phe His Tyr Asp Asn Val Leu Trp Ala Leu Leu Thr Leu			
1345	1350	1355	1360
ttt acg gtg tcc aca gga gag ggg tgg ccc atg gtg ctg aaa cac tct			4128
Phe Thr Val Ser Thr Gly Glu Gly Trp Pro Met Val Leu Lys His Ser			
1365	1370	1375	
gtg gac gcc acc tat gag gag cag ggg cca agc ccc ggg ttt cgg atg			4176
Val Asp Ala Thr Tyr Glu Glu Gln Gly Pro Ser Pro Gly Phe Arg Met			
1380	1385	1390	
gag ctt tcc atc ttc tat gtg gtc tac ttt gtg gtc ttc cct ttt ttc			4224
Glu Leu Ser Ile Phe Tyr Val Val Tyr Phe Val Val Phe Pro Phe Phe			
1395	1400	1405	
ttt gtc aac atc ttt gtg gcc ttg atc atc atc acc ttc cag gag cag			4272
Phe Val Asn Ile Phe Val Ala Leu Ile Ile Ile Thr Phe Gln Glu Gln			
1410	1415	1420	
ggg gac aag gtg atg tct gag tgc agt ctg gaa aag aat gag agg gct			4320
Gly Asp Lys Val Met Ser Glu Cys Ser Leu Glu Lys Asn Glu Arg Ala			
1425	1430	1435	1440
tgc att gac ttt gcc atc agc gcc aaa ccc ctg aca cgg tac atg cct			4368
Cys Ile Asp Phe Ala Ile Ser Ala Lys Pro Leu Thr Arg Tyr Met Pro			
1445	1450	1455	
cag aac aag cag tcg ttc cag tat aag aca tgg aca ttt gtg gtc tct			4416
Gln Asn Lys Gln Ser Phe Gln Tyr Lys Thr Trp Thr Phe Val Val Ser			
1460	1465	1470	
cca ccc ttt gag tac ttc att atg gcc atg ata gcc ctc aac aca gtg			4464
Pro Pro Phe Glu Tyr Phe Ile Met Ala Met Ile Ala Leu Asn Thr Val			
1475	1480	1485	
gtg ctg atg atg aag ttc tac gat gcc cct tat gag tac gag ctg atg			4512
Val Leu Met Met Lys Phe Tyr Asp Ala Pro Tyr Glu Tyr Glu Leu Met			
1490	1495	1500	
ctg aag tgc ttg aac atc gtc ttc aca tcc atg ttc tct ctg gag tgc			4560
Leu Lys Cys Leu Asn Ile Val Phe Thr Ser Met Phe Ser Leu Glu Cys			
1505	1510	1515	1520
atc ctg aag atc atc gcc ttc ggg gtg ttg aac tac ttc aga gat gcc			4608
Ile Leu Lys Ile Ile Ala Phe Gly Val Leu Asn Tyr Phe Arg Asp Ala			
1525	1530	1535	
tgg aac gtc ttt gac ttt gtc act gtt ttg gga agt att act gat att			4656
Trp Asn Val Phe Asp Phe Val Thr Val Leu Gly Ser Ile Thr Asp Ile			

1540	1545	1550	
tta gta acg gag att gcg aac aac ttc atc aac ttg agc ttc ctt cgc			4704
Leu Val Thr Glu Ile Ala Asn Asn Phe Ile Asn Leu Ser Phe Leu Arg			
1555	1560	1565	
ctc ttc cgg gca gca cgg ctg atc aag ctc tgt cgc cag ggc tac acc			4752
Leu Phe Arg Ala Ala Arg Leu Ile Lys Leu Cys Arg Gln Gly Tyr Thr			
1570	1575	1580	
atc cgc atc ttg tta tgg acc ttt gtc cag tcc ttt aag gcg ctg ccc			4800
Ile Arg Ile Leu Leu Trp Thr Phe Val Gln Ser Phe Lys Ala Leu Pro			
1585	1590	1595	1600
tac gtg tgc ctc ctc att gcc atg ctg ttc ttc atc tac gcc atc atc			4848
Tyr Val Cys Leu Leu Ile Ala Met Leu Phe Phe Ile Tyr Ala Ile Ile			
1605	1610	1615	
ggc atg cag gtt ttt gga aac att gcc ctt gat gat ggc acc agc atc			4896
Gly Met Gln Val Phe Gly Asn Ile Ala Leu Asp Asp Gly Thr Ser Ile			
1620	1625	1630	
aac cga cac aac aac ttc cgg aca ttt ctg caa gcc tta atg ctg ttg			4944
Asn Arg His Asn Asn Phe Arg Thr Phe Leu Gln Ala Leu Met Leu Leu			
1635	1640	1645	
ttc agg agt gcc act ggg gag gcc tgg cac gaa atc atg ctg tct tgc			4992
Phe Arg Ser Ala Thr Gly Glu Ala Trp His Glu Ile Met Leu Ser Cys			
1650	1655	1660	
ctg ggc aac cgg gcc tgc gac cca cat gcc aac gcc agc gaa tgc ggg			5040
Leu Gly Asn Arg Ala Cys Asp Pro His Ala Asn Ala Ser Glu Cys Gly			
1665	1670	1675	1680
agc gac ttt gcc tat ttt tat ttt gtc tcc ttc atc ttc ctc tgt tcc			5088
Ser Asp Phe Ala Tyr Phe Tyr Phe Val Ser Phe Ile Phe Leu Cys Ser			
1685	1690	1695	
ttt ctg atg ctg aac ctc ttt gtt gct gtg atc atg gac aat ttc gaa			5136
Phe Leu Met Leu Asn Leu Phe Val Ala Val Ile Met Asp Asn Phe Glu			
1700	1705	1710	
tac ctc acg cgg gat tct tcc atc cta ggg ccg cac cac ctc gat gaa			5184
Tyr Leu Thr Arg Asp Ser Ser Ile Leu Gly Pro His His Leu Asp Glu			
1715	1720	1725	
ttc att cgc gtc tgg gct gaa tac gac cca gct gcg tgt ggg cgc atc			5232
Phe Ile Arg Val Trp Ala Glu Tyr Asp Pro Ala Ala Cys Gly Arg Ile			
1730	1735	1740	
agt tac aat gac atg ttt gag atg ctg aaa cac atg tcc cca cct ctg			5280
Ser Tyr Asn Asp Met Phe Glu Met Leu Lys His Met Ser Pro Pro Leu			
1745	1750	1755	1760
ggg ttg ggg aag aaa tgc ccg gct cga gtt gca tac aag cgc ctg gtt			5328
Gly Leu Gly Lys Lys Cys Pro Ala Arg Val Ala Tyr Lys Arg Leu Val			
1765	1770	1775	
cga atg aac atg ccc ata tcc aat gag gac atg acg gta cac ttt aca			5376
Arg Met Asn Met Pro Ile Ser Asn Glu Asp Met Thr Val His Phe Thr			
1780	1785	1790	
tcc aca ctg atg gcc ctc atc cgg acg gca ctg gag atc aag ctt gcc			5424
Ser Thr Leu Met Ala Leu Ile Arg Thr Ala Leu Glu Ile Lys Leu Ala			
1795	1800	1805	
cca gcg ggg aca aaa cag cac caa tgt gat gct gag ctg agg aag gag			5472
Pro Ala Gly Thr Lys Gln His Gln Cys Asp Ala Glu Leu Arg Lys Glu			
1810	1815	1820	
atc tct tct gtg tgg gct aat ctg ccc cag aag act ctg gac tta ctg			5520
Ile Ser Ser Val Trp Ala Asn Leu Pro Gln Lys Thr Leu Asp Leu Leu			
1825	1830	1835	1840
gtg cca ccc cac aaa cct gac gag atg aca gtg ggg aag gtc tat gcg			5568
Val Pro Pro His Lys Pro Asp Glu Met Thr Val Gly Lys Val Tyr Ala			
1845	1850	1855	
gct ctc atg ata ttt gac ttc tac aaa cag aac aaa acc acc aga gat			5616
Ala Leu Met Ile Phe Asp Phe Tyr Lys Gln Asn Lys Thr Thr Arg Asp			

1860	1865	1870	
cag act cac caa gct cct gga ggc ctg tcc cag atg ggt cct gtt tcc			5664
Gln Thr His Gln Ala Pro Gly Gly Leu Ser Gln Met Gly Pro Val Ser			
1875	1880	1885	
cta ttc cat cct ctg aag gcc acc ctg gag cag aca cag ccc gct gtg			5712
Leu Phe His Pro Leu Lys Ala Thr Leu Glu Gln Thr Gln Pro Ala Val			
1890	1895	1900	
ctc cga gga gct cgg gtt ttc ctt cga caa aag agt gca act tcc ctc			5760
Leu Arg Gly Ala Arg Val Phe Leu Arg Gln Lys Ser Ala Thr Ser Leu			
1905	1910	1915	1920
agc aat ggg ggc gcc ata caa acc cag gaa agt ggc atc aag gag tcc			5808
Ser Asn Gly Gly Ala Ile Gln Thr Gln Glu Ser Gly Ile Lys Glu Ser			
1925	1930	1935	
ctg tcc tgg ggc acg cag agg acc cag gac gta ctt tat gag gcc aga			5856
Leu Ser Trp Gly Thr Gln Arg Thr Gln Asp Val Leu Tyr Glu Ala Arg			
1940	1945	1950	
gca cct cta gaa cgt ggc cat tct gca gag atc cct gtg ggg cag cca			5904
Ala Pro Leu Glu Arg Gly His Ser Ala Glu Ile Pro Val Gly Gln Pro			
1955	1960	1965	
gga gca ctg gct gta gat gtc cag atg cag aac atg aca ttg aga gga			5952
Gly Ala Leu Ala Val Asp Val Gln Met Gln Asn Met Thr Leu Arg Gly			
1970	1975	1980	
ccg gat ggg gag ccc cag cct ggc ctg gag agc caa ggc cga gcg gcc			6000
Pro Asp Gly Glu Pro Gln Pro Gly Leu Glu Ser Gln Gly Arg Ala Ala			
1985	1990	1995	2000
tct atg cca cgc ctg gcg gca gaa aca cag ccg gcc cct aat gcc agc			6048
Ser Met Pro Arg Leu Ala Ala Glu Thr Gln Pro Ala Pro Asn Ala Ser			
2005	2010	2015	
ccc atg aag cgc tcc atc tcc aca ctg gct cca cgc ccg cat ggg act			6096
Pro Met Lys Arg Ser Ile Ser Thr Leu Ala Pro Arg Pro His Gly Thr			
2020	2025	2030	
cag ctt tgc aac aca gtc ctg gac cgg cca cct cct agc cag gtg tcc			6144
Gln Leu Cys Asn Thr Val Leu Asp Arg Pro Pro Pro Ser Gln Val Ser			
2035	2040	2045	
cat cac cac cac cac cgc tgc cac cgg cgc agg gac aag aag cag agg			6192
His His His His His Arg Cys His Arg Arg Arg Asp Lys Lys Gln Arg			
2050	2055	2060	
tcc ctg gaa aag ggg ccc agc ctg tct gtt gac aca gaa ggt gca cca			6240
Ser Leu Glu Lys Gly Pro Ser Leu Ser Val Asp Thr Glu Gly Ala Pro			
2065	2070	2075	2080
agt act gct gca gga tct ggc ctg ccc cat gga gaa ggg tcc aca ggc			6288
Ser Thr Ala Ala Gly Ser Gly Leu Pro His Gly Glu Gly Ser Thr Gly			
2085	2090	2095	
tgc cgg cgg gag cgt aag caa gag cga ggc cgg tcc cag gag cgg agg			6336
Cys Arg Arg Glu Arg Lys Gln Glu Arg Gly Arg Ser Gln Glu Arg Arg			
2100	2105	2110	
cag ccc tcc tcc tct tct tca gag aag cag cgc ttc tat tcc tgt gac			6384
Gln Pro Ser Ser Ser Ser Ser Glu Lys Gln Arg Phe Tyr Ser Cys Asp			
2115	2120	2125	
cgc ttt ggg agc cgg gag ccc cca caa cct aag ccc tcc ctc agt agc			6432
Arg Phe Gly Ser Arg Glu Pro Pro Gln Pro Lys Pro Ser Leu Ser Ser			
2130	2135	2140	
cac ccc ata tcg cca aca gcg gca cta gag cca gga ccc cac ccg cag			6480
His Pro Ile Ser Pro Thr Ala Ala Leu Glu Pro Gly Pro His Pro Gln			
2145	2150	2155	2160
ggc agt ggt tcc gtt aat ggg agc ccc ttg atg tca aca tct ggt gct			6528
Gly Ser Gly Ser Val Asn Gly Ser Pro Leu Met Ser Thr Ser Gly Ala			
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agc acg ccg ggc cga ggt ggg cgg agg cag ctc ccc cag act ccc ctg			6576
Ser Thr Pro Gly Arg Gly Gly Arg Arg Gln Leu Pro Gln Thr Pro Leu			

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acc cca cgc ccc agc atc acc tac aag acg gcc aat tcc tcg cct gtc			6624
Thr Pro Arg Pro Ser Ile Thr Tyr Lys Thr Ala Asn Ser Ser Pro Val			
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cac ttt gct gag ggt cag agt ggc ctt cca gcc ttc tcc cct ggc cgt			6672
His Phe Ala Glu Gly Gln Ser Gly Leu Pro Ala Phe Ser Pro Gly Arg			
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ctc agc cgc ggc ctt tct gaa cac aat gcc ctg ctc cag aaa gag ccc			6720
Leu Ser Arg Gly Leu Ser Glu His Asn Ala Leu Leu Gln Lys Glu Pro			
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ctg agc cag cct cta gct tct ggc tcc cgc att ggc tct gac cct tac			6768
Leu Ser Gln Pro Leu Ala Ser Gly Ser Arg Ile Gly Ser Asp Pro Tyr			
2245	2250	2255	
cta ggg cag cgt ctg gac agt gag gcc tct gcc cac aac ctg cct gag			6816
Leu Gly Gln Arg Leu Asp Ser Glu Ala Ser Ala His Asn Leu Pro Glu			
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gat aca ctc acc ttt gaa gag gcc gtg gcc acc aac tct ggc cgc tcc			6864
Asp Thr Leu Thr Phe Glu Glu Ala Val Ala Thr Asn Ser Gly Arg Ser			
2275	2280	2285	
tcc agg act tcc tat gtg tcc tcc ctc act tcc caa tcc cac cct ctc			6912
Ser Arg Thr Ser Tyr Val Ser Ser Leu Thr Ser Gln Ser His Pro Leu			
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cgc cgt gta ccc aat ggc tac cac tgc act ttg gga ctc agc acc ggc			6960
Arg Arg Val Pro Asn Gly Tyr His Cys Thr Leu Gly Leu Ser Thr Gly			
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gtc cgg gcg cgg cac agc tac cac cac cca gac cag gat cac tgg tgc t			7009
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 Ala Leu Glu Gln His Leu Pro Asp Gly Asp Lys Thr Pro Met Ser Glu
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 Ala Gly Ile Lys Ile Ile Ala Leu Gly Phe Val Phe His Lys Gly Ser
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 Tyr Leu Arg Asn Gly Trp Asn Val Met Asp Phe Val Val Val Leu Thr
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 Glu Ile Leu Ala Thr Ala Gly Thr Asp Phe Asp Leu Arg Thr Leu Arg
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Ser	Ser	Phe	Asn	Cys	Phe	Asp	Phe	Gly	Val	Ile	Val	Gly	Ser	Ile	Phe
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Glu	Val	Val	Trp	Ala	Ala	Ile	Lys	Pro	Gly	Thr	Ser	Phe	Gly	Ile	Ser
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Trp	Asn	Ser	Leu	Arg	Asn	Leu	Val	Val	Ser	Leu	Leu	Asn	Ser	Met	Lys
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Lys	Asp	Glu	Glu	Glu	Met	Glu	Glu	Ala	Ala	Asn	Gln	Lys	Leu	Ala	Leu
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